

# XVII<sup>th</sup> World Congress of the International Commission of Agricultural and Biosystems Engineering

Convention Centre  
Québec City, Canada  
June 13-17, 2010

## Book of Abstracts

*"Sustainable Biosystems Through Engineering"*



American  
Ecological  
Engineering  
Society



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## GENERAL INFORMATION

The Book of Abstracts contains a summary provided by authors of presentations made during the XVII<sup>th</sup> World Congress of the International Commission of Agriculture and Biosystems Engineering (CIGR). The Congress was held under the general theme of "Sustainable Biosystems through Engineering". Several specialized symposia were organized by participating groups listed in the Table of Contents. The Canadian Society for Bioengineering (CSBE/SCGAB) is publisher of the Book of Abstracts.

### EDITORS

The Editors of the Book of Abstracts are Philippe Savoie, Joey Villeneuve and René Morissette, Agriculture and Agri-Food Canada, Soils and Crops Research and Development Centre, 2560 Hochelaga Boulevard, Québec, QC, Canada G1V 2J3.

The Editors acknowledge the assistance of several contributors to the revision and editing of abstracts and full length papers : Nathalie Guesneau, Héloïse Bastien, Pierre-Luc Lizotte, Pierre Luc Hébert and François-Simon Robert. The Editors received useful advice from the CIGR Section Chairs and the participating group coordinators whose names are on the next page. Several other people acted as reviewers of abstracts and papers to improve the quality of presentations; their work is appreciated.

### ABSTRACTS AND FULL PAPERS

To find an abstract, first identify its CSBE number (10XXXX). Papers can be found by technical themes in the List of Abstracts by Participating Group on pages 4 to 26. Abstracts are published in numerical order in the subsequent pages. Some abstracts have been shortened for reasons of space. Complete abstracts and full papers that were submitted will be available on the CSBE/SCGAB web site after the Congress. For updates on paper availability and downloading, visit: [www.bioeng.ca](http://www.bioeng.ca)

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# HOSTS AND ORGANIZING COMMITTEE

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## CIGR

CIGR was founded in 1930 in Belgium as a non-governmental, non-profit professional organization. The International Commission of Agricultural and Biosystems Engineering (CIGR) is a world-wide federation regrouping - in form of a networking system - national, regional and multinational associations, societies, corporations and individuals working in science and technology applied to the different fields of agricultural engineering.

[www.cigr.org](http://www.cigr.org)

## CSBE/SCGAB

The Canadian Society for Bioengineering / Société canadienne de génie agroalimentaire et de bioingénierie (CSBE/SCGAB) is an educational and scientific organization dedicated to the advancement of engineering applicable to agricultural, food, and biological systems. The Society was founded in 1958 in Wolfville, Nova Scotia.

[www.bioeng.ca](http://www.bioeng.ca)

## Organizing Committee



### Chair of the local organizing committee

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**Roger Thériault**, Université Laval, Canada  
**Joey Villeneuve**, Agriculture and Agri-Food Canada

## CIGR Section Chairs and Scientific Committee Coordinators

CIGR Section I: Land and Water Engineering (Chair: **Jose M. Tarjuelo** [Spain]); Coordinator: **Guanhua Huang** (China)

CIGR Section II: Farm Buildings, Equipment, Structures and Environment (Chair: **Daniel Berckmans** [Belgium]); Coordinators: **Hisamitsu Takai** (Denmark) and **Stéphane P. Lemay** (Canada)

CIGR Section II-B: Aquacultural Engineering; Coordinators: **Eiko Thiessen** (Germany) and **Ed Aneshansley** (USA)

CIGR Section III: Equipment Engineering for Plants (Chair: **John K. Schueller** [USA]); Coordinator: **Bernard Panneton** (Canada)

CIGR Section IV: Energy in Agriculture (Chair: **Mikio Umeda** [Japan]); Coordinator: **Philippe Savoie** (Canada)

CIGR Section V: Management, Ergonomics and Systems Engineering (Chair: **Pietro Piccarolo** [Italy]); Coordinator: **Remigio Berruto** (Italy)

CIGR Section VI: Postharvest Technology and Process Engineering (Chair: **Jozef Grochowicz** [Poland]); Coordinator: **Cristina Ratti** (Canada)

CIGR Section VII: Information Systems (Chair and Coordinator: **Antonio Saraiva** [Brazil])

INFITA and 8<sup>th</sup> World Congress on Computers in Agriculture jointly organized with CIGR Section VII; Coordinator **Fedro Zazueta** (USA)

ASABE's 9<sup>th</sup> International Drainage Symposium; Coordinators: **Ali Madani** (Canada), **Chip Chescheir** (USA) and **Gary Sands** (USA)

American Ecological Engineering Society 10<sup>th</sup> Annual Meeting (President: **Cully Hession** [USA]); Coordinator: **Stacy Hutchinson** (USA)

Symposium on Nanotechnologies Applied to Biosystems Engineering and the Environment; Coordinator: **Khaled Belkacemi** (Canada)

# LIST OF ABSTRACTS BY PARTICIPATING GROUP

## American Ecological Engineering Society 10<sup>th</sup> Annual Meeting

Monday, June 14 – 10:15 to 12:00

<b>1</b>	<b>AEES</b>	<b>Stream Water and Wetland Interactions (I)</b>
Time	Paper #	Moderator: Greg Jennings (USA) Room: 206A
10:15		<b>Session Opening</b>
10:20	100255	<b>Purlear Creek habitat restoration case study</b> G. Jennings, M. Shaffer, K. Hall et al. (United States)
10:40	101195	<b>Riparian constructed wetlands for improving water quality in a polluted river in southeastern Mexico</b> M.E. Hernández, P. Ruiz-Enzástiga (Mexico)
11:00	101493	<b>Predicting dynamic equilibrium in streams in the Olentangy River Watershed, Ohio, USA</b> J. Witter, A. Ward, J.L. D'Ambrosio (United States)
11:20	101526	<b>Flume analysis of in-channel restoration structures and impacts to secondary circulation flows</b> T. Zhou, T. Endreny (United States)
11:40	101532	<b>Characterizing surface-ground water exchange rates and hydraulic transport processes in a cascading stream</b> T. Endreny, M. Fabian (United States)

Monday, June 14 – 13:35 to 15:20

<b>16</b>	<b>AEES</b>	<b>Stream Water and Wetland Interactions (II)</b>
Time	Paper #	Moderator: Cully Hession (USA) Room: 206A
13:35		<b>Session Opening</b>
13:40	101604	<b>Patterns in groundwater hydrology of a small constructed floodplain wetland</b> A.L. Ludwig, W.C. Hession (United States)
14:00	101585	<b>Quantifying and utilizing uncertainty in stream restoration design</b> J.P. Resop, W.C. Hession, T.M. Wynn (United States)
14:20	101528	<b>Meander bend regulation of surface-ground water exchange and impacts for restoration design</b> B. Han, T. Endreny (United States)
14:40	101519	<b>Aquatic macroinvertebrate diversity in constructed stormwater wetlands</b> T. L. Moore, W.F. Hunt III (United States)

Monday, June 14 – 15:35 to 17:00

<b>31</b>	<b>AEES</b>	<b>Climate and Watershed Ecology</b>
Time	Paper #	Moderator: Dan Hitchcock (USA) Room: 206A
15:35		<b>Session Opening</b>
15:40	101590	<b>Climate change, energy scarcity, and Mississippi Delta restoration</b> J.W. Day, P. Kemp (United States)
16:00	101620	<b>Defining sustainable development targets for coastal hydrology, water quality, and ecology in South Carolina, USA</b> D.R. Hitchcock, A.D. Jayakaran, D.M. Rogers et al. (USA)
16:20	101595	<b>Design and implementation of a forebay-pond-wetland system for urban stormwater treatment in south Texas</b> X. Pan, K.D. Jones, S. Wang et al. (United States)
16:40	100450	<b>Update on setting the global temperature using ecological engineering</b> A. J. Horne (United States)

Tuesday, June 15 – 10:15 to 12:00

<b>46</b>	<b>AEES</b>	<b>Water Management and Crop Production</b>
Time	Paper #	Moderator: Stacy Hutchinson (USA) Room: 206A
10:15		<b>Session Opening</b>
10:20	101591	<b>Water use and sustainability in global corn production</b> J.P. Resop, M.D. Matlock, W.C. Hession et al. (USA)
10:40	101593	<b>Greywater irrigation: Antibacterial agents as barriers to greywater reuse</b> D.I. Harrow, R.J. Currer, R.E. Templin et al. (USA)

11:00	101608	<b>Rain garden networks: Impacts on water quality</b> C.G. Eger, D.A. Schlea, J.F. Martin (USA)
11:20	101612	<b>Using USGS NAWQA and EPA WSA data to assess the impact of agricultural practices on aquatic biodiversity, in-stream water quality, and habitat parameters affecting benthic macroinvertebrates</b> E. Cummings, M. Matlock, R.Z. Johnston (USA)
11:40	101384	<b>Spatial and temporal variation in the biodegradation of organophosphate pesticides in agricultural drains and riparian wetlands</b> M.E. Karpuzcu, J. Hanlon, D. Sedlak et al. (USA)

Tuesday, June 15 – 14:00 to 15:20

<b>61</b>	<b>AEES</b>	<b>Ecological Engineering – POSTERS</b>
Poster #	Paper #	Moderator: Grant Clark (Canada) Room: 2000D
22	101082	<b>Maximizing the hydrological impact of street trees through sidewalk design</b> S. Lingwood, O.G. Clark, P. Jutras et al. (Canada)
23	101600	<b>The landscape dynamics in Pirai da Serra, Brazil</b> C.H. Rocha, D. Almeida, P.H.W. Neto et al. (Brazil)
24	100455	<b>Emission of CH<sub>4</sub>, CO and NH<sub>3</sub> during composting of synthetic food waste in a controlled pilot-scale compost reactor</b> E. Phillip, G. Clark (Canada)
25	100652	<b>Harvesting from our food waste - Ecological treatment system for anaerobic digested food waste slurry</b> H. Lin, S. A.W. Diemont, D. L. Johnson (United States)
26	101609	<b>Biomass production, green house gas abatement and inter-row cropping in a constructed wetland</b> M. Duteau (Canada)
27	101529	<b>SAD-RH: a generic decision support system for water resource management</b> M.D.A.G.M. da Hora, E. Marques, A.F. da Hora (Brazil)
28	101589	<b>Reducing environmental vulnerability and enhancing community resiliency along the Louisiana coast through the coastal sustainability studio</b> J. W. Day, R. Twilley, L. Carter et al. (United States)
29	101472	<b>A methodology to manage environmental effects of crop-shelter coverage</b> C. Arcidiacono, S.M.C. Porto (Italy)
30	101603	<b>Load estimations using LOADEST within agriculturally dominated watersheds across the continental United States</b> R.Z. Johnston, E. Cummings, M. Matlock (United States)
31	101617	<b>Evaluation of attached periphytic algal communities for biofuel feedstock generation</b> H. N. Sandefur, M. D. Matlock, T. A. Costello (United States)
32	100379	<b>Comparison of different plantation modes in ecological restoration in Antaibao opencast mining sites in Shanxi Province, North China</b> J.-T. Zhang, M. Li (China)

Tuesday, June 15 – 15:35 to 17:20

<b>75</b>	<b>AEES</b>	<b>Ecological Engineering Principles and Practices</b>
Time	Paper #	Moderator: Stephanie Lansing (USA) Room: 206A
15:35		<b>Session Opening</b>
15:40	100711	<b>Investigating case-based reasoning for ecosystem design</b> T. R. Lanphere, O. G. Clark (United States)
16:00	101225	<b>Design challenges to the integration of ecosystem services into agricultural landscapes in arid ecosystems</b> W.T. Stringfellow (United States)
16:20	101192	<b>Creating renewable energy using ecological engineering principles</b> S. Lansing (United States)
16:40	100339	<b>Development of a framework for sustainable remediation decision making (SRDSS)</b> I. S. Dunmade (Canada)

17:00 101613 **Engineering autonomy in an algal turf scrubber techno-ecosystem.**  
D. M. Biersch, P. Kangas (United States)

Wednesday, June 16 – 8:15 to 10:00

**90 AEES Trees and Crops for Sustainability (I)**  
Time Paper # Moderator: Stewart Diemont (USA)  
Room: 205C  
8:15 **Session Opening**  
8:20 101550 **Modeling city tree growth with artificial intelligence and multivariate statistics for sustainable urban ecosystems**  
P. Jutras, S.O. Prasher (Canada)  
8:40 101087 **Biodiversity of managed forests surrounding the Calakmul Biosphere Reserve in Mexico**  
J. Bohn, S.A.W. Diemont, J. Mendoza (USA / Mexico)  
9:00 101040 **Short rotation woody biomass production as option for the restoration of post-mining areas in Lower Lusatia**  
C. Böhm, A. Quinkenstein, D. Freese et al. (Germany)  
9:20 101480 **How to manage legume-rhizobia N<sub>2</sub>-fixing symbioses as ecological engineers?**  
J.-J. Drevon, H. Hamza, B. Jaillard et al. (France/Egypt/Spain)  
9:40 101602 **Role of tao (Belotia mexicana) in the traditional Lacandon Maya shifting cultivation ecosystem**  
K. Cheng, S. Diemont, A. Drew (United States)

Wednesday, June 16 – 10:15 to 12:00

**104 AEES Trees and Crops for Sustainability (II)**  
Time Paper # Moderator: Dave Tilley (USA)  
Room: 204B  
10:15 **Session Opening**  
10:20 100800 **Mopan and Que'chi Maya ecological engineering: Design strategies for sustainable ecosystem restoration and human subsistence**  
D. D. Rayome, S. A.W. Diemont (United States)  
10:40 100788 **Linking traditional agroforestry practices of the Tsotsil Maya in Santo Domingo Las Palmas, Chiapas, Mexico to ecosystem biodiversity, land management sustainability, and community well-being**  
S. J. Kelsen, S. A. W. Diemont, B. G. Ferguson (Mexico/United States)  
11:00 101326 **Short rotation coppice with Robinia pseudoacacia L. -A land use option for carbon sequestration on reclaimed mine sites**  
A. Quinkenstein, C. Böhm, D. Freese et al. (Germany)  
11:20 101565 **The contribution of agroforestry systems to ecosystem services**  
D. Freese, C. Böhm, A. Quinkenstein et al. (Germany)  
11:40 100792 **Emergy synthesis for valuing the ecosystem services of green walls and other vegetated building envelope technologies**  
D. R. Tilley, J. Price, E. Campbell (United States)

Wednesday, June 16 – 13:35 to 15:20

**119 AEES Treatment Wetlands and Lagoon Management**  
Time Paper # Moderator: Christina Toms (USA) Room: 204B  
13:35 **Session Opening**  
13:40 101176 **Influence of hummocks and emergent vegetation on hydraulic performance in a surface-flow wastewater-treatment wetland**  
J.S. Daniels, S.H. Keefe, L.B. Barber (United States)  
14:00 101518 **Green manure production as a value-added component of treatment wetlands for livestock wastewater**  
S.D. McLennan, D. Reinhold (United States)  
14:20 101569 **An interdisciplinary ecological engineering approach to the assessment and enhancement of lagoons in California's central coast**  
C. Toms (United States)  
14:40 101575 **In-lake algal bloom removal and ecological restoration using modified local soil technology**  
G. Pan (China)

15:00 101610 **Evaluation of toxicity metrics and the toxicity of different production methods in the US**  
Z. Clayton-Niederman, L.L. Nalley, M.D. Matlock (USA)

Abstract only 101529 **Sad-rh: a generic decision support system for water resource management**  
M.De A.G.M. Da Hora, E. Marques, A.F. Da Hora

## ASABE's 9<sup>th</sup> International Drainage Symposium

Monday, June 14 – 10:15 to 12:00

**2 IDS Drainage and Water Quality**  
Time Paper # Moderator: Ali Madani (Canada)  
Room: 205C  
10:15 **Session Opening**  
10:20 100082 **Nitrogen and phosphorus losses in surface runoff water from various cash cropping systems**  
P. Jiao, T. Zhang, D. Xu et al. (China/Canada)  
10:40 100130 **Drainage on the Delmarva Peninsula: past history and future challenges**  
W. F. Ritter (United States)  
11:00 100157 **Nitrate-N loads to subsurface drains as affected by drainage intensity and agronomic management practices**  
E. J. Klavivko, L.C. Bowling, V. Poole (United States)  
11:20 100224 **Effects of drain depth on nitrate-N and phosphorus losses from drained agricultural lands receiving nitrogen and phosphorus from organic sources**  
C.A. Poole, R.W. Skaggs, G.M. Chescheir et al. (USA)

Monday, June 14 – 10:15 to 12:00

**3 IDS Evaluating Drainage Models and Drainpipe Envelopes**  
Time Paper # Moderator: Mohamed Youssef (USA)  
Room: 204B  
10:15 **Session Opening**  
10:20 100175 **Measured effect of agricultural drainage water management on hydrology, water quality, and crop yield**  
M. Sunohara, M. A. Youssef, E. Topp, D.R. Lapen (United States/Canada)  
10:40 100170 **Assessing the feasibility of DRAINMOD application using soil hydraulic properties estimated by pedotransfer functions**  
A. M. Abdelbaki, M. A. Youssef (United States)  
11:00 100217 **Mathematical modelling on the operation of water control structures in a secondary block**  
F. X. Suryadi, P. H. J. Hollanders, R. H. Susanto (Netherlands/Indonesia)  
11:20 100177 **Laboratory study of the soil clay percent influence on the need for subsurface drainage system envelopes**  
T. Sohrabi, H. Ojaghloo, H. Rahimi et al. (Iran)  
11:40 101667 **Machines for wrapping drainage pipes with a defined voluminous synthetic fiber filter**  
W. Hevert (Germany)

Monday, June 14 – 13:35 to 15:20

**17 IDS Drainage Modeling in Saline Conditions**  
Time Paper # Moderator: Matt Helmers (USA)  
Room: 205C  
13:35 **Session Opening**  
13:40 100199 **Evaluation of DRAINMOD in predicting water table fluctuations and yield of canola in paddy fields (case study: Rasht, Iran)**  
M. Parsinejad, B. Hassanpour, M.R. Yazdani et al. (Iran)  
14:00 100055 **Determining optimized distance and depth of subsurface drains under unsteady flow conditions at multiple cropping pattern**  
F. Vahdat, A. Sarraf, E. Pazira et al. (Iran)

# LIST OF ABSTRACTS BY PARTICIPATING GROUP

14:20	100027	<b>Evaluation of two drainage models in south-west Iran</b> F. Samipour, M. Rabie, K. Mohammadi et al. (Iran)
14:40	100103	<b>Drainage in heavy clay soil and sugar beet yield in eastern North Delta</b> M. M. Moukhtar, A. I.N. Abdel-Aal And, M.A. B. El-Shewikh (Egypt)

Monday, June 14 – 13:35 to 15:20

<b>18</b>	<b>IDS</b>	<b>Impact of Organic Fertilizers on Drained Land</b>
Time	Paper #	Moderator: Larry Geohring (USA) Room: 204B
13:35		<b>Session Opening</b>
13:40	100139	<b>Occurrence of tylosin-resistant enterococci in swine manure and tile drainage stems under no-till management</b> T.T. Hoang, M. L. Soupir (United States)
14:00	100149	<b>Phosphorus losses through subsurface drainage in a loamy soil of Iowa: effects of rates, timing and method of swine manure and fertilizer application</b> C. Hoang, R. Kanwar, C. Pederson (United States)
14:20	100201	<b>Subsurface drainage nitrogen discharges following manure application: measurements and model analyses</b> J. Melkonian, L.D. Geohring, H.M. V. Es et al. (United States)
14:40	100096	<b>The effects of treated wastewater on soil nitrogen dynamics and winter wheat growth under different groundwater depth</b> X. Qi, Z. Huang, P. Li et al. (China)

Monday, June 14 – 15:35 to 17:00

<b>32</b>	<b>IDS</b>	<b>Drainage and Salinity</b>
Time	Paper #	Moderator: Gary Sands (USA) Room: 205C
15:35		<b>Session Opening</b>
15:40	100109	<b>Salt leaching efficiency of subsurface drainage systems at presence of diffusing saline water table boundary: A case study in Khuzestan Plains, Iran</b> E. Pazira, M. Homaei (Iran)
16:00	100133	<b>Estimating reclamation water requirement and predicting final soil salinity for soil desalinization</b> A. Sarraf, F. Vahdat, E. Pazira et al. (Iran)
16:20	100164	<b>Soil salinity change detection in irrigated area under Qazvin Plain irrigation network using satellite imagery</b> P. D. Arasteh (Iran)

Monday, June 14 – 15:35 to 17:00

<b>33</b>	<b>IDS</b>	<b>Water Treatment with Wetland and Drainage Systems</b>
Time	Paper #	Moderator: Shiv Prasher (Canada) Room: 204B
15:35		<b>Session Opening</b>
15:40	100232	<b>Establishing a relationship between hydraulic efficiency and treatment performance in constructed wetlands</b> M. Wahl, L. C. Brown, A. O. Soboyejo et al. (USA/China)
16:00	101626	<b>Understanding the removal mechanisms of pharmaceutical compounds in a constructed wetland setup</b> S.A. Hussain, S. Prasher (Canada)
16:20	100169	<b>Temperature effects on shallow water infiltration rates in an underground rock bed BMP</b> M. Horst (United States)
16:40	100231	<b>Lessons gained from French R&amp;D programs for pesticides dissipation by use of constructed wetlands</b> J. Tournebize, B. Vincent, C. Chaumont et al. (France)

Tuesday, June 15 – 10:15 to 12:00

<b>47</b>	<b>IDS</b>	<b>Performance of Drainage Water Management Systems</b>
Time	Paper #	Moderator: Larry Brown (USA) Room: 205C
10:15		<b>Session Opening</b>
10:20	100206	<b>DRAINMOD-simulated performance of drainage water management across the U.S. Midwest</b> M. A. Youssef, R. W. Skaggs, K.R. Thorp et al. (USA/Egypt)
10:40	100084	<b>Potential water quality impact of drainage water management in the Midwest USA</b> D. B. Jaynes, K. R. Thorp, D. E. James (USA)
11:00	100138	<b>Water table response to drainage water management in southeast Iowa</b> M. Helmers, R. Christianson, G. Brenneman et al. (USA)
11:20	100154	<b>Controlled drainage to improve edge-of-field water quality in southwest Minnesota, USA</b> S.E. Feser, J.S. Strock, G.R. Sands et al. (USA)
11:40	100222	<b>Methods to estimate effects of drainage water management on annual N losses to surface waters</b> R. W. Skaggs, M. A. Youssef, G.M. Chescheir (USA)

Tuesday, June 15 – 13:35 to 15:20

<b>62</b>	<b>IDS</b>	<b>Application of Drainage Models</b>
Time	Paper #	Moderator: Ali Madani (Canada) Room: 205C
13:35		<b>Session Opening</b>
13:40	100137	<b>Potential watershed nitrate load reduction with drainage water management under varied implementation options</b> S. Ale, L. Bowling, M. Youssef et al. (United States)
14:00	100214	<b>Modeling runoff from a small artificially drained agricultural catchment in Norway, using the DRAINMOD model.</b> J. Deelstra, C. Farkas, M. Youssef (Norway/United States)
14:20	100143	<b>Impact of climate change on drainage outflow and water quality in eastern Canada</b> S. Dayyani, S. Prasher, A. Madani et al. (Canada)
14:40	100205	<b>Predicted impacts of climate change on crop production on drained lands in Sweden</b> M. A. Youssef, I. Weststrom (United States/Sweden)
15:00	100218	<b>Application of SWAP to assess performance of subsurface drainage system under semi-arid monsoon climate</b> A. K. Verma, S. K. Gupta, R. K. Isaac (India)

Tuesday, June 15 – 15:35 to 17:20

<b>76</b>	<b>IDS</b>	<b>Modeling Drainage Systems</b>
Time	Paper #	Moderator: Ramesh Rudra (Canada) Room: 205C
15:35		<b>Session Opening</b>
15:40	100241	<b>The relationship between watershed physiography, tile flow, and streamflow characteristics</b> R. P. Rudra, S. I. Ahmed, M. Khayer et al. (Canada)
16:00	100258	<b>Hydrologic modelling of an agricultural drained micro-watershed: Performance analysis of coupled surface water/groundwater models</b> M. Muma, A.N. Rousseau, C. Paniconi et al. (Canada/France)
16:20	101372	<b>Empty drain and the water level at midway between the drains. Aspects regarding management</b> P. Castanheira (Portugal)
16:40	101429	<b>New software for the optimal design of drainage network in steady-state sub-irrigation case study: Greoni-Ticvanu Mare drainage arrangement</b> M.T. Eugen, B. Marinela, C. Laura et al. (Romania)
17:00	100147	<b>Surface runoff and soil physical properties as affected by subsurface drainage improvement of a heavy clay soil</b> L. Alakukku, E. Turtola et al. (Finland)

Tuesday, June 15 – 15:35 to 17:20

<b>77</b>	<b>IDS</b>	<b>Drainage Topics – POSTERS</b>
Poster #	Paper #	Moderator: Gary Sands (USA) Room: 2000D
50	100071	<b>A comparison of DRAINMOD and SWAT for surface runoff and subsurface drainage flow prediction at the field scale for a cold climate</b> M. Chikhaoui, C. Madramootoo, A. Gollamudi (Canada)
51	100086	<b>Performance of DRAINWAT model in assessing the drainage discharge from a small watershed in the Po valley (Northern Italy)</b> M. Borin, T. Bisol, D. M. Amatya (Italy)
52	100072	<b>Assessment of climate change impact on the subsurface drainage flow in the Pike River watershed using the SWAT model</b> M. Chikhaoui, C. Gombault, C. Madramootoo et al. (Canada)
53	100116	<b>Performance of biodrainage systems in arid and semiarid areas with salt accumulation in soils</b> S. Akram, H. Liaghat (Iran)
54	100155	<b>Nutrient load from two drainage systems on clay soil</b> P. Vakkilainen, L. Alakukku, M. Myllys et al. (Finland)
55	100161	<b>The role of curli and cellulose in the transport and survival of Escherichia coli on a central New York dairy farm</b> A. E. Salvucci, M. Elton, J. D. Siler et al. (United States)
56	100204	<b>Mapping soil moisture content variability using electromagnetic induction method</b> A.A.Farooque, Q. Zaman, A. Schumann et al. (Canada/USA)
57	101484	<b>Impact of shallow water table depths on surface irrigation requirements and crop performance</b> Z. Ulhaque (Pakistan)
58	100129	<b>Sustainability of biodrainage systems considering declining of evapotranspiration rate of trees due to soil salinization</b> H. Liaghat, M. Mashal (Iran)
59	100219	<b>Impact on drainage water quality from amending agricultural soils in Nova Scotia with an alkaline stabilized biosolid</b> G.W.Price, A. Madani, J.D. Gillis (Canada)
60	100095	<b>Water balance and corn yield under different water table management scenarios in southern Québec</b> A. Singh, C. A. Madramootoo, D. L. Smith (Canada)
61	100192	<b>An initial assessment of a wetland-reservoir wastewater treatment and reuse system receiving agricultural drainage water in Nova Scotia</b> M. Haverstock, A. Madani, R. Gordon et al. (Canada)
62	100145	<b>Suitable buffer strip width along rivers for nitrate N removal from paddy field drainage</b> Z. Zhan-Yu 1, C. Yi-Xia, Z. Cheng-Li et al. (China)
63	100253	<b>Implications of agricultural drainage water reuse: I. crop yield and water productivity</b> A. A.-A. Aboukeira, A. El-Shafie, M. H. Rady et al. (United States/Egypt)
64	100191	<b>Implications of agricultural drainage water reuse: II. soil properties</b> A. A.-A. Aboukeira, A. El-Shafie, M. H. Rady (USA/Egypt)
65	101668	<b>Drainage control system (DCS)</b> V. Machabee (Canada)

Wednesday, June 16 – 10:15 to 12:00

<b>106</b>	<b>IDS</b>	<b>Drainage From Forested Lands and other Land Uses</b>
Time	Paper #	Moderator: Devendra Amatya (USA) Room: 204B
10:15		<b>Session Opening</b>
10:20	100261	<b>A comparison of mike she and DRAINMOD for modeling forested wetland hydrology in coastal south Carolina, USA</b> Z. Dai, D. M. Amatya, G. Sun et al. (United States)
10:40	100185	<b>Field evaluations of a forestry version of DRAINMOD-N II model</b> S. Tian, M. A. Youssef, R.W. Skaggs et al. (USA)

11:00	100188	<b>Streamflow characteristics of a naturally drained forested watershed in southeast Atlantic coastal plain</b> D. M. Amatya, C. C. Trettin (United States)
11:20	100215	<b>The effect of sampling frequency on the accuracy of nitrogen load estimates from drained loblolly pine plantations in eastern North Carolina</b> G. M. Chescheir, F. Brigand, S. Tian et al. (USA)
11:40	100162	<b>Advances in sportsturf drainage</b> D. B. Shelton (United Kingdom)

Wednesday, June 16 – 10:15 to 12:00

<b>107</b>	<b>IDS</b>	<b>Maps and Tools for Decision Makers</b>
Time	Paper #	Moderator: Robert Lagacé (Canada) Room: 206A
10:15		<b>Session Opening</b>
10:20	100078	<b>National inventory of artificially drained lands in Germany</b> B. Tetzlaff, P. Kuhr, F. Wendland (Germany)
10:40	100271	<b>Using earth observation data for soil drainage classification and mapping</b> M.A. Niang, M.C. Nolin, S. Perrault et al. (Canada)
11:00	100301	<b>Certification of drainage contractor enterprises - experience in Québec</b> R. Lagacé, D. Laberge, F. Lambert (Canada)
11:20	100243	<b>Preliminary study of the WRSIS concept at the paddy-upland crops rotation area in southern China</b> S. Xiaohou J. Qiu H. Xiujun et al. (China)
11:40	100093	<b>Impacts of the Chashma Right Bank Canal on land use and cropping pattern in D.I.Khan district (Pakistan)</b> A.-U. Rahman, A. N. Khan (Pakistan)

Wednesday, June 16 – 13:35 to 15:20

<b>120</b>	<b>IDS</b>	<b>Treatment of Drainage Water</b>
Time	Paper #	Moderator: William Ritter (USA) Room: 206A
13:35		<b>Session Opening</b>
13:40	100073	<b>Bioreactor design geometry effects on nitrate removal</b> L. Christianson, A. Bhandari, M. Helmers (United States)
14:00	100171	<b>Nitrate removal of drainage water with barley straw as a bioreactor filter</b> S. E. Hashemi, M. Heidarpour, B. Mostafazadeh-Fard et al. (Iran)
14:20	100207	<b>Beyond the field: A look at agricultural ditch floodplains as a water quality BMP</b> S. Kallio, A. Ward, J. L. D'Ambrosio et al. (United States)
14:40	100209	<b>A decade later: the establishment, channel evolution, and stability of innovative two-stage agricultural ditches in the Midwest region of the United States</b> R. Kallio, A. Ward, J. L. D'Ambrosio et al. (United States)
15:00	100229	<b>Minnesota agricultural ditch reach assessment for stability (MADRAS): A decision support tool</b> J. Magner, B. Hansen, C. Anderson et al. (United States)

Wednesday, June 16 – 13:35 to 15:20

<b>121</b>	<b>IDS</b>	<b>Drainage of Irrigated Lands</b>
Time	Paper #	Moderator: George "Chip" Chescheir (USA) Room: 205C
13:35		<b>Session Opening</b>
13:40	100037	<b>Drainage of irrigated lands</b> C. B. Dandekar , B. A. Chougule (India)
14:00	100104	<b>Environmental and economic multi-objective model for managing irrigation and drain water</b> H. Noory, A.-M. Liaghat, M. Parsinejad et al. (Iran)
14:20	100225	<b>Water redistribution within the potato root zone following irrigation</b> S. Satchithanantham, M.R.C. Cordeiro et al. (Canada)
14:40	100227	<b>Assessment of rootzone water redistribution in corn following irrigation</b> M. R. C. Cordeiro, S. Satchithanantham et al. (Canada)
15:00	100228	<b>Drainage design practices in irrigated agriculture; new concepts gained from recent experiences in three countries of Maghreb, North Africa</b> B. Vincent, I. B. Aissa, A. Belouazni et al. (France/Tunisia/Algeria/Morocco)

# LIST OF ABSTRACTS BY PARTICIPATING GROUP

Abstract only	100087	<b>Comparison of drainmod and artificial neural network for predicting water table depth and drain discharge in a subsurface drainage system</b> H. Ebrahimi, H. Ojaghlou, A. Liaghat, M. Parsinejad, B. Nazari, H. Noory (Iran)
Abstract only	100106	<b>Application of drainmod-n model for predicting nitrate-n in paddy rice fields under controlled drainage in a coastal region of Iran</b> H. Noory, H.Z. Abyaneh, H. Noory, A.-M. Liaghat (Iran)

## Symposium on Nanotechnologies Applied to Biosystems Engineering and the Environment

Wednesday, June 16 – 8:15 to 10:00

<b>91</b>	<b>Nano</b>	<b>Nanotechnologies for Food Treatments</b>
Time	Paper #	Moderator: Suresh Neethirajan (Canada) Room: 205A
8:15		<b>Session Opening</b>
8:20	100287	<b>Conjugated linoleic acid formation by hydrogenation/isomerization of safflower oil over bifunctional novel structured catalyst</b> N. Chorf, S. Hamoudi, J. Arul et al. (Canada)
8:40	100304	<b>Convergence – big potential: Microfluidics for food, agriculture and biosystems industries</b> S. Neethirajan, F. Lin (Canada)
9:00	100661	<b>Separation of benzoic acid from cranberry juice by use of nanofiltration membranes</b> D. Q. Lai, N. Tagashira, S. Hagiwara et al. (Japan)
9:20	101402	<b>Improvement of nutritional benefits in foods by incorporation of starch-antioxidant assemblies</b> P. Le Bail (France)
9:40	101357	<b>Stability of nano-emulsified lycopene under thermal processing</b> J. Shi, S.J. Xue (Canada)

Wednesday, June 16 – 10:15 to 12:00

<b>108</b>	<b>Nano</b>	<b>Nanotechnologies for Environment and Seeds</b>
Time	Paper #	Moderator: Safia Hamoudi (Canada) Room: 205A
10:15		<b>Session Opening</b>
10:20	100850	<b>Alkanolamine/ionic liquid microemulsions: Enhanced CO<sub>2</sub> capture ability with curbed corrosion behaviour</b> M. Hasib-Ur-Rahman, M. Siaz, F. Larachi (Canada)
10:40	101305	<b>Adsorptive removal of phosphate anions from aqueous solutions using functionalized SBA-15: Effects of the organic functional group</b> S. Hamoudi, A. El-Nemr, K. Belkacemi (Canada)
11:00	100368	<b>Development of carbon dioxide (CO<sub>2</sub>) sensor using polymer nanoparticles for grain quality monitoring</b> S. Neethirajan, M. Freund, D. Jayas et al. (Canada)
11:20	101351	<b>Effect of silver nanoparticles for protection of seeds in different soils</b> N. Karimi, S. Minaei, A.R. Shahverdi et al. (Iran)
11:40	101456	<b>A variable rate grain drill for planting seeds treated with silver nanoparticles</b> N. Karimi, S. Minaei, M. Almasi et al. (Iran)

Wednesday, June 16 – 13:35 to 15:20

<b>122</b>	<b>Nano</b>	<b>Production and Application of Nanoparticles – POSTERS</b>
Poster #	Paper #	Moderators: Khaled Belkacemi and Joseph Arul (Canada) Room: 2000D
57	100213	<b>Synthesis of CaCO<sub>3</sub> nanoparticles by controlled precipitation from saturated sodium carbonate and calcium nitrate aqueous solutions</b> R. B. Babou-Kammoe, S. Hamoudi, K. Belkacemi (Canada)

58	100559	<b>Determination of the optimum combination of processes in nano-sizing flax fibres for use as sustainable reinforcement in bionanocomposites</b> B.A.C. Siao, S. Panigrahi, L. Tabil (Canada)
59	101201	<b>Effect of addition of different types of modified clays in the properties of opacity and solubility of zein biofilm</b> J.F. Lopes-Filho, L.L. Tavares, C.B. Almeida et al. (Brazil)
60	101360	<b>A facile solvothermal route to shape-controlled titania nanocrystals</b> C.-T. Dinh, T.-D. Nguyen, F. Kleitz et al. (Canada)

## Special Interdisciplinary Session on Education

Wednesday, June 16 – 10:15 to 12:00

<b>105</b>	<b>Edu</b>	<b>Engineering Education for Agriculture, Food Systems, Ecology and Biosystems</b>
Time	Paper #	Moderator: Omar Ulloa (Costa Rica) Room: 2102B
10:15		<b>Session Opening</b>
10:20	100058	<b>A dean's perspective on the future of agricultural engineering education in Canada</b> Claude Laguë (Canada)
10:40	101663	<b>Biosystems engineering curricula in Europe</b> P. Febo, A. Comparetti (Italy)
11:00	-	<b>Engineering Education in Latin America</b> Irenilza Alencar Naas (Brazil)

## SECTION I Land and Water Engineering (including EnviroWater 2010)

Monday, June 14 – 10:15 to 12:00

<b>4</b>	<b>Section I</b>	<b>Irrigation and Crop Response</b>
Time	Paper #	Moderator: Shaoyuan Feng (China) Room: 207
10:15		<b>Session Opening</b>
10:20	100883	<b>Response of spring-maize and soil to saline irrigation in northwest China</b> J. Jiang, S. Feng, Y. Wang (China)
10:40	100561	<b>Investigating the potential for rice production with sprinkler irrigation</b> E. Vories, W. Stevens, P. Tacker et al. (United States)
11:00	101118	<b>Searching for improved irrigation scheduling alternatives for horticultural crops in the humid tropics</b> Y. Chaterlán, M. León, C. Duarte et al. (Cuba/Portugal)
11:20	100292	<b>Safflower (carthamus tinctorius L.) water use from shallow good quality and saline water tables in lysimetric experiment in a semiarid region of Iran</b> H. Ghamamia, M. Golamian, S. Sepehri (Iran)
11:40	100254	<b>Deficit irrigation as an agricultural water management system for corn: a review</b> A. A. – A. Aboukeira (United States)

Monday, June 14 – 10:15 to 12:00

<b>5</b>	<b>Section I</b>	<b>Water Management and Soil Properties – POSTERS</b>
Poster #	Paper #	Moderator: Jose Fernando Ortega Alvarez (Spain) Room: 2000D
1	100552	<b>Confined and semi-confined compression curves of highly calcareous soil amended with organic manures</b> N. Aghilinategh, A. Hemmat, M. Sadeghi (Iran)
2	100556	<b>Stress relaxation behaviour of a highly calcareous soil amended with long-term application of three organic manures</b> A. Hemmat, N. Aghilinategh, M. Sadeghi (Iran)



3	100809	<b>Environmental assessment for defining new management strategies for the conservation of soil and water resources</b> R. F. B. Silva, P. I. R. De Moraes, A. A. Da Conceição Sartori et al. (Brazil)
4	100968	<b>Effects of the crop root on the soil physic properties and soil water transport environment</b> K. Yuge, M. Anan (Japan)
5	101085	<b>Effects of mechanical aeration on the compaction and permeability of a grassy sward</b> S. Chehaibi, M. Khelifi, K. Abrougui (Tunisia/Canada)
6	101639	<b>Wastewater reclamation and reuse practices for agriculture in Korea</b> E.J. Lee, S.W. Park, C.H. Seong et al. (Republic Of Korea)
7	100759	<b>Farmers mitigation and adaptation options to salinity in Sicily</b> N. Colonna, D. Rapti- Caputo, F. Lupia et al. (Italy)
8	100256	<b>The potential of using a new agricultural system for improving water productivity of wheat</b> A. A.- A. Aboukeira (United States)

Monday, June 14 – 13:35 to 15:20

<b>19</b>	<b>Section I</b>	<b>Irrigation System Design</b>
Time	Paper #	Moderator: Peilin Yang (China) Room: 207
13:35		<b>Session Opening</b>
13:40	100986	<b>Use of two drippers spacing in the same lateral line and theirs effects on the wetted bulb formation, yield and quality of radish (<i>Raphanus sativus</i> L.)</b> L. P. De Azevedo, J. C. C. Saad (Brazil)
14:00	101153	<b>Improving the performance of landscape sprinkler irrigation through field evaluations and modelling</b> G.C. Rodrigues, P. Paredes, M.I. Valin et al. (Portugal)
14:20	100509	<b>Characterization of energy requirements in pressurized irrigation networks and evaluation of potential energy saving measures in southern Spain</b> J.A. R. Diaz, E. C. Poyato, T. C. Cobo (Spain)
14:40	101047	<b>Optimal hydraulic and energy design of pivots directly fed with groundwater</b> M. A. Moreno, J.F.Ortega, D. Medina et al. (Spain)
15:00	101042	<b>Design and evaluation of an automated short furrow irrigation system</b> N. Lecler, D. Mills, J. Smithers (South Africa)

Monday, June 14 – 15:35 to 17:00

<b>34</b>	<b>Section I</b>	<b>Equipment for Irrigation and Soil Monitoring</b>
Time	Paper #	Moderator: Luis Santos Pereira (Portugal) Room: 207
15:35		<b>Session Opening</b>
15:40	101545	<b>Sensors for effective irrigation scheduling and improved water use efficiency of cotton cultivars</b> C. Bellamy, A. Khalilian, H. Farahani et al. (United States)
16:00	101017	<b>Effect of the type of sprinkler and height above the soil on onion (<i>Allium cepa</i> L.) crop</b> J.A. De Juan Valero, A. Domínguez, J.M. Tarjuelo et al. (Spain)
16:20	101170	<b>Advanced technologies applied to hose reel rain-gun machines: New perspectives towards sustainable sprinkler irrigation</b> G. Ghinassi (Italy)
16:40	101339	<b>A triple-sensor horizontal penetrometer for on-the-go measuring soil moisture content, electrical conductivity and mechanical resistance</b> Q. Zeng, Y. Sun, P.S. Lammers (China/Germany)

Tuesday, June 15 – 10:15 to 12:00

<b>48</b>	<b>Section I</b>	<b>Impact of Climate Change on Watersheds</b>
Time	Paper #	Moderator: Juan Antonio Rodríguez Díaz (Spain) Room: 207
10:15		<b>Session Opening</b>
10:20	101332	<b>Impact assessment of climate change on irrigation by a distributed water circulation model</b> T. Masumoto, R. Kudo, T. Yoshida et al. (Japan)

10:40	100790	<b>Climate change impact assessment for a small river basin using a process-based numerical model of coupled surface water/groundwater flow</b> M. Sulis, C. Paniconi, C. Rivard et al. (Canada)
11:00	100979	<b>Sustainable planning of land use changes in farming areas under ecological protection</b> F.Montero-García, F.Montero-Riquelme, A. Brasa-Ramos et al. (Spain/Netherlands)
11:20	101184	<b>Forecasting hydrological time series in the face of climate change</b> J. Adamowski (Canada)

Tuesday, June 15 – 13:35 to 15:20

<b>63</b>	<b>Section I</b>	<b>Irrigation and Development</b>
Time	Paper #	Moderator: Antonio Brasa Ramos (Spain) Room: 207
13:35		<b>Session Opening</b>
13:40	101003	<b>Evaluation of irrigation systems by using benchmarking techniques</b> J.I.Córcoles, J.M. Tarjuelo, M.A.Moreno et al. (Spain)
14:00	100670	<b>Revitalizing smallholder irrigation schemes in Limpopo Province of South Africa</b> P. G. De Witt (Africa)
14:20	100176	<b>Use of agricultural census data for the estimation of irrigation water consumption at farm level</b> F. Lupia, I. Namdarian, F. D. Santis (Italy)
14:40	100901	<b>Fostering irrigation practices in the humid tropics of (southwestern) Nigeria to sustain life and development</b> M.O. Alatise (Nigeria)
15:00	101288	<b>Overcoming food shortage through improved irrigation strategy</b> Z. Ul-Haque (Pakistan)

Tuesday, June 15 – 13:35 to 15:20

<b>64</b>	<b>Section I</b>	<b>Water and Crop Response – POSTERS</b>
Poster #	Paper #	Moderator: Jose Manuel Monteiro Gonçalves (Portugal) Room: 2000D
33	100210	<b>Effect of water stress on yield and yield components of two wheat cultivars</b> M. Najmaei, A. Soleymani, A. R. Golparvar (Iran)
34	100294	<b>Effect of water stress on water use efficiency and yield of nigella sativa in Kermanshah Province in the west of Iran</b> H. Ghamarnia (Iran)
35	100376	<b>Crop coefficient of cowpea bean in Piauí State, Brazil</b> E. A. Bastos, A. S. A. Júnior, V. M. Ferreira et al. (Brazil)
36	100567	<b>Method to suppress or remove blue-green algae in the pond of large area by micro bubbles</b> T. Nakashima, Y. Hirata (Japan)
37	101126	<b>Irrigation system management assisted by thermal imagery and spatial statistics</b> S.J. Thomson, C.M. Ouellet-Plamondon, S.L. Defauw et al. (United States/United Kingdom)
38	101127	<b>Cut chrysanthemum (<i>Chrysanthemum morifolium</i> Ramat.) irrigation scheduling under greenhouse conditions</b> M.F. De Farias, J.C.C. Saad (Brazil)
39	100715	<b>Irrigation management in real time for arugula crop in Sergipe</b> A. N. Do Vasco, A. De O. A. Netto, R. Silva-Mann et al. (Brazil)
40	101637	<b>Several groundwater levels affecting sorghum plants in protected environment</b> A.E. Klar, A.A. Tanaka (Brazil)
41	100562	<b>Effects of super absorbent polymers application methods on carrot germination and growth</b> J. Yu, H. Liu, J. Shi et al. (China/Israel)

# LIST OF ABSTRACTS BY PARTICIPATING GROUP

Tuesday, June 15 – 15:35 to 17:20

<b>78</b>	<b>Section I</b>	<b>Modeling Water Use for Crop Production</b>
Time	Paper #	Moderator: Mario Falciai (Italy) Room: 207
15:35		<b>Session Opening</b>
15:40	101193	<b>Application of mathematic models of water in irrigated bean crop under no-tillage system</b> D.R. Bizari, E.E. Matsura, M. Mesquita (Brazil)
16:00	101050	<b>Development of reference evapotranspiration models with limited data by using artificial neural networks structures</b> A. Martinez, M.A. Moreno, J.F. Ortega et al. (Spain)
16:20	101164	<b>The dual crop coefficient approach: Application of the SimDualKc model to winter wheat in North China Plain</b> Z. Nana, L. Yu, C. Jiabing et al. (China/Portugal)
16:40	100501	<b>Simulation of site-specific irrigation control strategies with sparse input data</b> A. C. Mccarthy, N. H. Hancock, S. R. Raine (Australia)
17:00	100362	<b>The relation between non-irrigated planting at sandy land and micrometeorological alleviation in Ningxia, China</b> T. Maki (Japan)

Wednesday, June 16 – 8:15 to 10:00

<b>92</b>	<b>Section I</b>	<b>Management of Flood, Drainage and Ground Water (joint with IDS*)</b>
Time	Paper #	Moderator: Mauro Greppi (Italy) Room: 206A
8:15		<b>Session Opening</b>
8:20	100549	<b>Mathematical models for flood management: Efficiency and reliability</b> D. Dewrachen, V. Garattini, S. Mambretti (Italy)
8:40	100627	<b>Soil bioengineering techniques in flood risk mitigation in Friuli Venezia Region</b> S. Sanna (Italy)
9:00	100159*	<b>Storage and reuse of drainage water</b> I. Wesström, A. Joel (Sweden)
9:20	100684	<b>Modelling the groundwater dynamics as influenced by water management in Hetao irrigation district, Upper Yellow River basin, and predicting impacts of foreseen water use and savings</b> Xu Xu, G. Huang, Z. Qu et al. (China)

Wednesday, June 16 – 8:15 to 10:00

<b>93</b>	<b>Section I</b>	<b>Modeling Water in Soils and Crops – POSTERS</b>
Poster #	Paper #	Moderator: Robert Broughton (Canada) Room: 2000D
1	100622	<b>Assessing different leaching models in SE Iran</b> F. A. Pour (Iran)
2	100654	<b>Prediction of the max flow for the model SASIS: Sensibility to the empirical parameters of the form of the furrow</b> R. V. Pordeus, C. A. V. De Azevedo et al. (Brazil)
3	100666	<b>Studying different type of leaching models in two pilots located at South East of Khoozestan Province</b> F. Allahyari, K. Mohsenifar, S. Haghighat et al. (Iran)
4	100695	<b>Simulation of the irrigation for furrow for the model SASIS: Sensibility to the factors of space consideration and storm</b> R. V. Pordeus, C. A. V. De Azevedo et al. (Brazil)
5	100746	<b>A meta-analysis of weather effects on corn nitrogen fertilization requirements</b> Min Xie, Nicolas Tremblay, Zhanmin Wei (Canada/China)
6	100890	<b>Monitoring of dust emission and development of a CFD model to predict the dispersion of fugitive dust at a reclaimed land</b> H.-S. Hwang, I.-B. Lee, I.-H. Seo et al. (Korea)
7	101378	<b>Affect of drought on pollution of Lenj station of Zayandehrood River by artificial neural network (ANN)</b> K. Mohsenifar, E. Pazira, N. Mohsenifar et al. (Iran)

Wednesday, June 16 – 10:15 to 12:00

<b>109</b>	<b>Section I</b>	<b>Changes in Water and Land Uses</b>
Time	Paper #	Moderator: Guanhua Huang (China) Room: 207
10:15		<b>Session Opening</b>
10:20	100363	<b>Geographical shift in livestock production: Consequences for land use planning and policy making</b> G. J. Carsjens, P. Gerber (Netherlands/Italy)
10:40	100466	<b>Agriculture, population and their impact on the global environment</b> P. Roy, T. Orikasa, N. Nakamura et al. (Japan)
11:00	100546	<b>Grid based rainfall-runoff GIS modelling to study the anthropogenic effect on the hydrology of a small watershed</b> M. Greppi, G. Senes (Italy)
11:20	100331	<b>Development of a model for estimating current and future irrigation water demand in Canada</b> O. Aladenola, C. Madramootoo (Canada)
11:40	101228	<b>Technical, economic and legal aspects of management of transboundary water resources - A case study of Indus Waters Treaty 1960</b> S.J.A. Shah (Pakistan)

Wednesday, June 16 – 13:35 to 15:20

<b>123</b>	<b>Section I</b>	<b>Assessment of Water Pollution and Salinity</b>
Time	Paper #	Moderator: Gerrit-Jan Carsjens (Netherlands) Room: 207
13:35		<b>Session Opening</b>
13:40	100081	<b>Modelling phosphorus inputs from diffuse and point sources with MEPHos in Germany - a contribution to the implementation of the EU water legislation</b> B. Tetzlaff (Germany)
14:00	101220	<b>Effect of nonionic surfactant Brij 35 on the fate of metribuzin in a sandy soil</b> E. Elsayed, S.O. Prasher, R.M. Patel (Canada)
14:20	101468	<b>Phosphorus removal and recovery from high calcium hog lagoon supernatant using a gravity settled struvite reactor</b> J.N. Ackerman, N. Cicek (Canada)
14:40	100739	<b>Mapping of soil salinity and clay content based on electromagnetic induction measurements by EM38</b> S. Zia, D. Wenying, W. Spreer et al. (Germany/China)
15:00	100127	<b>Studies on appropriate depth of leaching water along with reclamation-rotation program (a case study in mid-part of Khuzestan, Iran)</b> F. Rajabzadeh, E. Pazira, M. H. Mahdian (Iran)

Abstract only	100152	<b>Ground water recharge in wagarwadi watershed through recharge process and ground water flow models</b> K.P. Gore, V.V.S. Gurunadharao, B.S. Naik, D. Barman (India)
Abstract only	100520	<b>Integrated water supply management at watershed scale for agricultural purposes in a perspective of adaptation to climate change</b> Jean-François Cyr, Richard Turcotte, Charles Poirier, Diane Chaumont (Canada)

## SECTION II Farm Buildings, Equipment, Structures and Environment

Monday, June 14 – 10:15 to 12:00

<b>6</b>	<b>Section II</b>	<b>Field Measurements, CFD and Abatement Techniques (I)</b>
Time	Paper #	Moderator: Eileen Fabian Wheeler (USA) Room: 204A
10:15		<b>Session Opening</b>

10:20	100696	<b>Numerical simulation of a pit exhausts system for reduction of ammonia emission from a naturally ventilated cattle building</b> B. Bjerg, M. Andersen (Denmark)
10:40	100762	<b>Measurements of air ventilation rates in naturally ventilated dairy cattle buildings</b> W. Berg, M. Fiedler, A. Kiwan et al. (Germany)
11:00	101059	<b>Gas emission rate from different Japanese open type pig houses with natural ventilation</b> A. Ikeguchi (Japan)
11:20	101131	<b>Measuring concept for determining ammonia emissions from naturally ventilated dairy housing with an outdoor exercise area</b> S. Schrader, M. Keck, K. Zeyer et al. (Switzerland/Germany)
11:40	101117	<b>Comparison of ammonia emissions from a naturally ventilated dairy loose housing with solid floor surfaces over two seasons</b> S. Schrader, M. Keck, K. Zeyer et al. (Switzerland/Germany)

Monday, June 14 – 10:15 to 12:00

<b>7</b>	<b>Section II Poultry</b>	
Time	Paper #	Moderator: Qiang Zhang (Canada) Room: 205B
10:15		<b>Session Opening</b>
10:20	100320	<b>Application of slightly acidic electrolyzed water for disinfection in a broiler farm</b> X. Hao, B. Li, Y. Ji et al. (China)
10:40	100361	<b>Activity analysis in broiler chickens with different gait scores</b> A. Aydin, O. Cangar, S. E. Ozcan et al. (Belgium)
11:00	101114	<b>Radiant heat distribution in broiler housing using infrared thermometry</b> M.S. Baracho, G.R. Nascimento, I.A. Nääs et al. (Brazil)
11:20	100841	<b>Thermal environment inside broiler housing using distinct lateral membrane structure</b> G. R. Nascimento, M.S. Baracho, I.A. Nääs (Brazil)

Monday, June 14 – 13:35 to 15:20

<b>20</b>	<b>Section II Field Measurements, CFD and Abatement Techniques (II)</b>	
Time	Paper #	Moderator: Werner Berg (Denmark) Room: 204A
13:35		<b>Session Opening</b>
13:40	101254	<b>Preliminary study of ammonia emissions from naturally ventilated fattening pig houses in the South-East China</b> K. Wang, Z. Ye, H. Li (China)
14:00	101322	<b>Measurement of ammonia emissions from three ammonia emission reduction systems for dairy cattle using a dynamic flux chamber</b> H.J.C. Van Dooren, J. Mosquera (Netherlands)
14:20	101366	<b>Air pollution and livestock production</b> A.C. Watt, S.M. Aziz, T.M. Banhazi (Australia)
14:40	101392	<b>Reduction of gas and odour emissions from a swine building using a biotrickling filter</b> M. Belzile, S.P. Lemay, D. Zegan et al. (Canada)
15:00	101478	<b>Evaluation of the effectiveness of an antimicrobial air filter to avoid porcine reproductive and respiratory syndrome virus (PRRSv) aerosol transmission, after 16 months of exposure to a commercial swine environmental conditions</b> L. Batista, F. Pouliot, L. Urizar (United States/Canada)

Monday, June 14 – 13:35 to 15:20

<b>21</b>	<b>Section II Swine (I)</b>	
Time	Paper #	Moderator: John Feddes (Canada) Room: 205B
13:35		<b>Session Opening</b>
13:40	100300	<b>Maintaining the pre-slaughter enthalpy chain improves animal welfare in pigs</b> M. Villarroel, P. Barreiro, P. Kettlewell et al. (Spain/UK)
14:00	100921	<b>Effect of a water-cooled cover on the thermal comfort of pregnant sows in hot and humid climate</b> Z. Pang, B. Li, H. Xin et al. (China/Korea/United States)

14:20	101074	<b>Modelling the stress responses of livestock to the thermal loads experienced on transcontinental, export journeys</b> M.A. Mitchell, P.J. Kettlewell, M. Villarroel et al. (United Kingdom/Spain)
14:40	101119	<b>Pathogen removal from pig manure by full-scale psychrophilic anaerobic digestion in sequencing batch reactors</b> Y. Gilbert, D. Massé, E. Topp (Canada)
15:00	101391	<b>Impact of temperature control strategies on animal performance, gas emissions and energy requirements for grower-finisher pigs</b> S.P. Lemay, J. Feddes, F. Pouliot et al. (Canada)

Monday, June 14 – 15:35 to 17:00

<b>35</b>	<b>Section II Swine (II)</b>	
Time	Paper #	Moderator: Stéphane Godbout (Canada) Room: 205B
15:35		<b>Session Opening</b>
15:40	101415	<b>New building concepts for sustainable swine production in Québec: A systematic review</b> S. Godbout, N. Turgeon, S.P. Lemay et al. (Canada)
16:00	100445	<b>Influence of water sprinkling on the amount of dust particles in a house for fattening pigs</b> S. Nimmermark (Sweden)
16:20	100478	<b>Heating and cooling performance of an under floor earth tube air tempering system in a mechanical ventilated farrowing house</b> E. F. Hessel, C. Zurhake, H. F. A. V. D. Weghe (Germany)
16:40	100425	<b>Gait and force analysis of provoked pig gait on clean and fouled rubber mat surface</b> H. V. Wachenfelt, C. Nilsson, S. Pinzke (Sweden)

Monday, June 14 – 15:35 to 17:00

<b>36</b>	<b>Section II Greenhouses and Horticulture</b>	
Time	Paper #	Moderator: Daniel Massé (Canada) Room: 204A
15:35		<b>Session Opening</b>
15:40	101221	<b>Development of bioengineering processes to transform greenhouse waste into energy, fertilizer and tomato</b> D. Brisson, D.I. Massé, P. Juteau et al. (Canada)
16:00	101277	<b>Influence of insect nets and thermal screens on climate conditions of commercial scale greenhouses: A CFD approach</b> A.A. Sapounas, S. Hemming, H.F. de Zwart et al. (Netherlands)
16:20	100407	<b>Energy consumption and commercial applications of liquid foam insulation technology for greenhouses</b> J. Villeneuve, D. De Halleux, K. Aberkani et al. (Canada)
16:40	101227	<b>Generating usable and safe CO2 for enrichment of greenhouses from the exhaust gas of a biomass heating system</b> L.-M. Dion, M. Lefsrud (Canada)

Tuesday, June 15 – 10:15 to 12:00

<b>50</b>	<b>Section II Cattle (I)</b>	
Time	Paper #	Moderator: Joahn Palacios (Canada) Room: 205B
10:15		<b>Session Opening</b>
10:20	100252	<b>An expert system for planning and designing milking parlour constructions</b> M. Hatem, M. Samer, H. Grimm et al. (Egypt/Germany)
10:40	100276	<b>How to rectify design flaws of dairy housing in hot climates?</b> M. Samer (Egypt)
11:00	100370	<b>Housing for replacement heifers and dairy cows</b> J. Flaba, H. Georg, R.E. Graves et al. (Belgium/Germany/USA)
11:20	100645	<b>Effect of temperature and physico-chemical characteristics on the efficiency of coagulation flocculation pretreatment of water on dairy farms</b> L. Masse, D. I. Massé, É. Pariseau et al. (Canada/USA)

# LIST OF ABSTRACTS BY PARTICIPATING GROUP

11:40 100690 **Effects of different cluster types on teat condition and milk release parameters**  
S. Sagkob, H.-J. Rudovsky, S. Pache et al. (Germany)

Tuesday, June 15 – 10:15 to 12:00

**51 Section II Energy, Greenhouses and Materials–POSTERS**  
Moderator: Heiko Georg (Germany) Room: 2000D  
Poster # Paper #  
1 100754 **Simulation models to optimize input energy in Mediterranean greenhouse production**  
A. Marucci, A. Gusman, B. Pagnello et al. (Italy)  
2 101226 **Effects of photosensitive shade nets on the meteorological elements, growth and radiation use efficiency of cucumber**  
R. de C. Ferreira, N. F. Da Silva, R. de S. Bezerra (Brazil)  
3 101502 **A model for the evaluation of building sustainability in agri-food industry**  
F. Barreca, G. Cardinali, S. Di Fazio (Italy)  
4 101507 **The natural material in bioconstruction between tradition and innovation: The use of giant reed Arundo donax L. in the rural constructions**  
F. Barreca (Italy)  
5 101021 **Bedding materials for cattle barns and their thermo-technical properties in different climatic conditions**  
J. Lendelova, Š. Mihina, Š. Pogran (Slovakia)  
6 101662 **Countermeasure of energy conservation of farm buildings in rural areas of cold region in China**  
L. Mao, G. Li, D. Tian et al. (China)  
7 100884 **Development of a solar thermal storage system suitable for the farmhouse heating in northeast China**  
M.-K. Jang (China)

Tuesday, June 15 – 13:35 to 15:20

**65 Section II Methods to Quantify Emissions in Naturally Ventilated Buildings (II)**  
Moderator: Daniel Berckmans (Belgium) Room: 204A  
Time Paper #  
13:35 Session Opening  
13:40 100773 **Intermittent measurement technique to estimate ammonia emission from manure storage**  
A. Youssef, S. E. Özcan, F. Guizhou et al. (Belgium/France)  
14:00 100974 **Tracer gas technique in comparison with other techniques for ventilation rate measurements through naturally ventilated barns**  
A. Kiwan, R. Brunsch, S. E. Özcan et al. (Germany/Belgium)  
14:20 101061 **Measurement method of ventilation rate with tracer gas method in open type livestock houses**  
A. Ikeguchi, H. Moriyama (Japan)  
14:40 100624 **Development and testing of technical measures for the abatement of PM10 emissions from poultry housing**  
N. Ogink, A. Aarnink, J. Mosquera et al. (Netherlands)  
15:00 – **Open discussion – Emissions from natural ventilated buildings**  
Atsuo Ikeguchi (Japan)

Tuesday, June 15 – 13:35 to 15:20

**66 Section II Cattle (II)**  
Moderator: Alfred Marquis (Canada) Room: 205B  
Time Paper #  
13:35 Session Opening  
13:40 100764 **Potential soil contamination under free stall dairy barn using earthen base stalls with sand bedding**  
Y. Choinière (Canada)  
14:00 101055 **A farm system approach to analyze greenhouse gas (GHG) mitigation strategies for ruminant production systems**  
A. Meyer-Aurich, W.K. Berg, S. Schattauer et al. (Germany)  
14:20 101187 **Evaluation of injection sites of thermal sensing transponders in cattle for automatic body core temperature recording**  
H. Georg, A. Schwalm, G. Ude (Germany)

14:40 101506 **Automatic and frequency-programmable systems for feeding TMR: State of the art and available technologies**  
C. Bisaglia, F. Nydegger, A. Grothmann et al. (Italy/Switzerland/Netherlands)  
15:00 100963 **Milking technology on modern dairy farms -assessment from the user's perspective**  
M. Kauke, F. Korth, P. Savary et al. (Switzerland)

Tuesday, June 15 – 15:35 to 17:20

**79 Section II Reduction of Ammonia and Odour Emissions (I)**  
Moderator: Theo Demmers (UK) Room: 204A  
Time Paper #  
15:35 Session Opening  
15:40 100443 **Reducing ammonia release in a floor housing system for laying hens by daily removal of manure below a perforated floor**  
G. Gustafsson (Sweden)  
16:00 100616 **Impact of the manure removal from slatted floor in a dairy barn on the ammonia emission**  
S.K. Retz, H. Georg, S. Godbout et al. (Germany/Canada)  
16:20 100644 **Dairy manure amendment effects on odor and gas emissions**  
E.F. Wheeler, M.A.A. Adviento-Borbe, R.C. Brandt et al. (USA)  
16:40 100747 **Odour control on pig farms by biofiltration**  
G. Buelna, N. Turgeon, R. Dubé (Canada)  
17:00 101025 **A new design for highly efficient partial pit ventilation**  
P. Pedersen, T. L. Jensen (Denmark)

Tuesday, June 15 – 15:35 to 17:20

**80 Section II Manure Handling**  
Moderator: Frederic Pelletier (Canada) Room: 205B  
Time Paper #  
15:35 Session Opening  
15:40 100442 **Flush systems for dairy manure removal: the Alley roughness value**  
E. Bresci, P. Ferrari, A. Giacomini, M. Barbari (Italy)  
16:00 100528 **Managing residual phosphorus and nitrogen from treated swine slurry using a disposal field: Behaviour over four years of on-site operation**  
R. Dubé, G. Bellemare, G. Buelna et al. (Canada)  
16:20 100547 **Electro-separation process for treating liquid animal manures**  
S.-P. Guertin, D. Massé, F. Lamarche (Canada)  
16:40 101517 **Environmental impacts of manure management strategies in pig production**  
F. Pelletier, S. Godbout, S.P. Lemay et al. (Canada)  
17:00 101057 **Evaluating the performance of vegetative treatment systems on open beef feedlots in the Midwestern United States**  
B. J. Bond, R. T. Burns, C. Henry et al. (United States)

Wednesday, June 16 – 8:15 to 10:00

**94 Section II Simulation of Aerosol, Gas and Emission**  
Moderator: Bjarne Bjerg (Denmark) Room: 204A  
Time Paper #  
8:15 Session Opening  
8:20 100430 **Performance simulation of high volume low speed fans in a free stall barn**  
W. Yan, D. Barker, Y. Sun, Y. Zhang et al. (United States)  
8:40 100548 **A simulation model to predict the internal climatic conditions in livestock houses as a tool for improving the building design and management**  
P. Liberati, P. Zappavigna (Italy)  
9:00 100870 **CFD modeling of livestock odor dispersion on complex topography**  
S.-H. Kwon, S.-W. Hong, I.-B. Lee et al. (Korea)  
9:20 100888 **Aerodynamic analysis of air pollutants in pig farms using CFD technology**  
J.-S. Choi, I.-B. Lee, S.-W. Hong et al. (Korea)  
9:40 100908 **Methodology of analyzing ventilation efficiencies based on "age of air" theory using CFD technology**  
K.-S. Kwon, I.-B. Lee, H.-S. Hwang et al. (Korea/Philippines)

Wednesday, June 16 – 8:15 to 10:00

<b>95</b>	<b>Section II</b>	<b>Reduction of Ammonia and Odour Emission (II)</b>
Time	Paper #	Moderator: Larry Dean Jacobson (USA) Room: 205B
8:15		<b>Session Opening</b>
8:20	101163	<b>Ammonia reduction and maintenance costs for old air cleaning systems and slurry acidification systems</b> M. Lyngbye (Denmark)
8:40	101260	<b>Biofilter combined with a biotrickling filter and a chemical air scrubber</b> A.L. Riis (Denmark)
9:00	101262	<b>Reducing odour and ammonia emission by cooling inlet air in a farrowing facility</b> A.L. Riis, T.L. Jensen, P. Pedersen (Denmark)
9:20	101416	<b>Reduction of odour emissions from swine buildings: Comparison of three reduction techniques</b> S. Godbout, L. Hamelin, S.P. Lemay et al. (Canada/Denmark)
9:40	101640	<b>A sequential wet scrubber using re-circulated and biological processed water for purification of discharge air from pig houses</b> P. Kai, H. Takai, P.J. Dahl et al. (Denmark/Japan)

Wednesday, June 16 – 10:15 to 12:00

<b>110</b>	<b>Section II</b>	<b>Field Measurements for Aerosol and Gas</b>
Time	Paper #	Moderator: Sven Nimmermark (Sweden) Room: 204A
10:15		<b>Session Opening</b>
10:20	100659	<b>Broiler gas spatial variability on different minimum ventilation systems</b> D.J. Moura, T.M.R. Carvalho, Z.M. Souza et al. (Brazil)
10:40	100942	<b>Dust and ammonia emissions from UK poultry houses</b> T. Demmers, A. Saponja, R. Thomas et al. (UK)
11:00	101015	<b>Ammonia emissions from broiler housing facility: Influence of litter properties and ventilation</b> M. Knižatová, Š. Mihina, J. Brouček et al. (Slovakia)
11:20	101211	<b>Measuring emissions from a naturally ventilated turkey grow-out building</b> L.D. Jacobson, B.P. Hetchler, S.L. Noll (United States)
11:40	101135	<b>Assessing odour plumes surrounding swine operations</b> Q. Zhang, X. Zhang (Canada)

Wednesday, June 16 – 10:15 to 12:00

<b>111</b>	<b>Section II</b>	<b>Building Design and Materials</b>
Time	Paper #	Moderator: Yves Choinière (Canada) Room: 205B
10:15		<b>Session Opening</b>
10:20	100462	<b>Minimum distance separation (MDS) formulae: 40 years (1970-2010) - Successes and lessons learned</b> H. W. Fraser, J. Turvey (Canada)
10:40	100615	<b>Sustainable building with concrete: how long do containers last?</b> J.-G. Krentler (Germany)
11:00	100628	<b>Usage of concrete for farm buildings and manure storages; specifications, durability and practical considerations</b> Y. Choinière (Canada)
11:20	100936	<b>An instrument for measuring the skid resistance of floors in livestock housing</b> P. Liberati, P. Zappavigna (Italy)
11:40	101469	<b>Treatment of dairy soiled water using a woodchip filter</b> E. Ruane, P.N.C. Murphy, E. Clifford et al. (Ireland)

Wednesday, June 16 – 13:35 to 15:20

<b>124</b>	<b>Section II</b>	<b>Methods to Quantify Aerosol, Gas and Emissions</b>
Time	Paper #	Moderator: Anders Feilberg (Denmark) Room: 204A
13:35		<b>Session Opening</b>
13:40	100401	<b>The influence of animal activity and litter on carbon dioxide balances to determine ventilation flow in broiler production</b> S. Calvet, M. Cambra-López, F. Estellés et al. (Spain/Germ.)

14:00	101079	<b>Effects of air exchange, temperature and slurry management on odorant emissions from pig production units and slurry tanks studied by proton-transfer-reaction mass spectrometry (PTR-MS)</b> A. Feilberg, A.P.S. Adamsen, D. Liu et al. (Denmark)
14:20	101523	<b>Identification of key odour components from pig buildings for modelling purposes</b> M. Martel, S.P. Lemay, M. Belzile et al. (Canada)
14:40	100932	<b>Use of carbon dioxide balances to determine ventilation rates from fattening rabbits farms</b> F. Estellés, O. Blumetto, S. Calvet et al. (Spain/Uruguay)
15:00	-	<b>Open discussion - Aerosol, gas and odor emission</b> Larry Dean Jacobson (USA)

Wednesday, June 16 – 13:35 to 15:20

<b>125</b>	<b>Section II</b>	<b>Grain Storage Issues</b>
Time	Paper #	Moderator: Thomas Banhazi (Australia) Room: 205B
13:35		<b>Session Opening</b>
13:40	100685	<b>Rough rice storage below freezing point by using renewable energy from fresh chilly air in winter</b> S. Kawamura, K. Takekura (Japan)
14:00	100864	<b>Low-temperature brown rice storage by using renewable energy from snow</b> S. Fujikawa, S. Kawamura, H. Fujita et al. (Japan)
14:20	100899	<b>Equipment for dust reduction in grain handling: evaluation of dust and chaff extractor and aspirator</b> Q. Geng, G. Lundin (Sweden)

Abstract only	101373	<b>Anaerobic co-fermentation process using the swine manure with organic byproduct</b> In Hwan Oh, W.G. Kim (Korea)
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## SECTION II-B Aquacultural Engineering

Tuesday, June 15 – 10:15 to 12:00

<b>52</b>	<b>Section II-B</b>	<b>Aquaculture Systems</b>
Time	Paper #	Moderator: Ed Aneshansley (USA) Room: 205A
10:15		<b>Session Opening</b>
10:20	101364	<b>Wolffishes, ideal species for intensive aquaculture: Rearing density and welfare assessment</b> N.R. Le François, S. Tremblay-Bourgeois, T. Benfey et al. (Canada/Iceland)
10:40	101356	<b>A fully integrated marine environmental aquaculture recirculation system (MEARS™) in conjunction with the environmental recirculation of waste</b> R.J. Bishop (United States)
11:00	100995	<b>Modelling baffles in water aquaculture ponds</b> E. Bresci, A. Giacomini, M. Falciai et al. (Italy)
11:20	100662	<b>Intensive culture of Amur sturgeon (<i>Acipenser schrenckii</i>) fingerlings in a recirculating aquaculture system</b> C. Guangbin, H. Shicheng, J. Shuyi et al. (China)
11:40	101477	<b>Inshore recirculating system for the production of marine finfish</b> Z.T.J. Pfeiffer, P.S. Wills (United States)

Tuesday, June 15 – 13:35 to 15:20

<b>67</b>	<b>Section II-B</b>	<b>Monitoring and Technology for Aquaculture</b>
Time	Paper #	Moderator: Ed Aneshansley (USA) Room: 205A
13:35		<b>Session Opening</b>
13:40	100303	<b>The importance of fish neurohormonal response reared under recirculating water systems: a review</b> S. E. Papoutsoglou (Greece)



# LIST OF ABSTRACTS BY PARTICIPATING GROUP

14:00	101460	<b>The "virtual-cage culture": Controlling and harvesting fish using behavioural conditioning</b> B. Zion, A. Barki, Y. Grinshpon et al. (Israel)
14:20	101551	<b>In vivo flatfish size and weight monitoring by image analysis</b> E. Thiessen, E. Hartung (Germany)
14:40	101615	<b>Effects of ozone and water exchange rates on water quality and rainbow trout, <i>Oncorhynchus mykiss</i>, performance in replicated water reuse aquaculture systems</b> J. Davidson, S. Summerfelt, C. Good et al. (United States)
15:00	101056	<b>Sustainable environmental management for tropical floating net cage mariculture, a modelling approach</b> S. A. Van Der Wulp, K. R. Niederndorfer, K-J Hesse et al. (Germany/Indonesia)

Tuesday, June 15 – 15:35 to 17:20

81	Section II-B Aquaculture – POSTERS
Poster #	Paper #
	Moderator: Eiko Thiessen (Germany)
	Room: 2000D
66	100955
67	101054
68	101592
69	101657
	<b>Aquaculture in greenhouse</b> M.C.G. Quiles, G. L. Diaz, M.C.M. Rodriguez (Spain)
	<b>An innovative colorimetric calibration method used to quantify differences among wild and reared gilthead seabream (<i>Sparus Aurata</i>, Linnaeus 1758)</b> C. Costa, F. Antonucci, F. Pallottino et al. (Italy)
	<b>Québec driven pilot-scale cultivation of spotted wolffish (<i>Anarhichas minor</i>)</b> N.R. Le François, F. Dufresne, D. Chabot et al. (Canada)
	<b>Monitoring and modeling phosphorus contributions in a freshwater lake with cage-aquaculture</b> J.E. Milne, R.D. Moccia (Canada)

## SECTION III Equipment Engineering for Plants

Monday, June 14 – 10:15 to 12:00

8	Section III	Soil Tillage Equipment and Analysis (I)
Time	Paper #	
		Moderator: Carol Plouffe (USA)
		Room: 203
10:15		<b>Session Opening</b>
10:20	100536	<b>Soil failure mode in front of a multiple– tip horizontally-operated penetrometer affected by depth/width ratio of its tip and shank</b> A. Hemmat, A. Khorsandi, V. Shafaie (Iran)
10:40	100613	<b>Soil bin investigations of the effects of tillage tool width on draught and soil disturbance parameters in sandy clay loam soil</b> S.I. Manuwa, O. C. Ademosu, L.A.S. Agbetoye et al. (Nigeria)
11:00	100791	<b>Comparison of cleaning performance for row cleaners on a strip tillage implement</b> R.C. Roberge, T.G. Crowe, M. Roberge (Canada)
11:20	100975	<b>Reducing friction by ultrasonic vibration exemplified by tillage</b> R. Kattenstroth, H.– H. Harms, W. Wurpts et al. (Germany)
11:40	101409	<b>Effect of long term crop rotation and fertilization on moldboard plow draft in a clay– loam soil</b> N.B. McLaughlin, C.F. Drury, W.D. Reynolds et al. (Canada)

Monday, June 14 – 10:15 to 12:00

9	Section III	Precision Agriculture and Monitoring
Time	Paper #	
		Moderator: Qamar Zaman (Canada)
		Room: 205A
10:15		<b>Session Opening</b>
10:20	101306	<b>How to integrate multi– sensor data for precision agriculture</b> A. Castrignanò, M.T.F. Wong, D. de Benedetto et al. (Italy/Australia)

10:40	100378	<b>Evaluation of a variable rate liquid fertilizer for site specific application</b> A. Javadi, B. B. Mackvandi (Iran)
11:00	101105	<b>Assessment of real time variable application of nitrogen using remote sensing sensors: perspectives in Slovakia</b> V. Rataj, J. Galambošová, M. Ingeli et al. (Slovakia)
11:20	101007	<b>Comparison of tractor-rotary tiller combination and power tiller in terms of energy expenditure of operators</b> B. Eminoglu, A. Beyaz, O. Orel et al. (Turkey)
11:40	100500	<b>Measurement of dilation of root crops</b> M. Shimazu, Y. Shibata, H. Araki et al. (Japan)

Monday, June 14 – 13:35 to 15:20

22	Section III	Soil Tillage Equipment and Analysis (II)
Time	Paper #	
		Moderator: Carol Plouffe (USA)
		Room: 203
13:35		<b>Session Opening</b>
13:40	101350	<b>Application of discrete element method (DEM) simulations as a tool for predicting tillage tool wear</b> L. Graff, M. Roberge, T. Crowe (Canada)
14:00	101375	<b>DEM analysis of the soil-tool (sweep) interaction</b> K. Tamás, I.J. Jóri (Hungary)
14:20	101414	<b>Tillage and planting energies for corn production under three tillage systems on a clay-loam soil</b> N.B. McLaughlin, C.F. Drury, W.D. Reynolds et al. (Canada)
14:40	101143	<b>Development of below-floor level soil bin system for soil tillage dynamics research at the Federal University of Technology Akure, Nigeria</b> L.A.S. Agbetoye, S.I. Manuwa et al. (Nigeria)
15:00	100514	<b>Tillage effects on soil and production management for winter wheat in southwest Turkey</b> Z. B. Barut, S. Aykanat, M. M. Turgut (Turkey)

Monday, June 14 – 13:35 to 15:20

23	Section III	Cutting and Threshing Mechanisms
Time	Paper #	
		Moderator: Martin Roberge (Canada)
		Room: 205A
13:35		<b>Session Opening</b>
13:40	100897	<b>Development of a water catcher for high pressure water jet cutting of agricultural goods</b> D. Juenemann, H.-H. Harms (Germany)
14:00	101031	<b>Qualitative and quantitative aspects on field drying of sorghum and evaluating the mower conditioner prototype devised by Cra-Ing - Cressoni</b> L. Pari, A. Assirelli, A. Suardi (Italy)
14:20	100851	<b>Effect of various operational and design parameters on the performance of a rotary feeding and cutting system</b> E. Veikle, M. Roberge, V. Meda (Canada)
14:40	101122	<b>Effects of some cutting blade and plant factors on specific cutting energy of sugarcane stalk</b> J. Razavi, M. Kardany, A. Masoumi (Iran)
15:00	100316	<b>Comparative analysis of the threshing cylinders performance on sorghum</b> K. J. Simonyan, I. S. Dunmade (Nigeria/Canada)

Monday, June 14 – 13:35 to 15:20

24	Section III	Field Equipment – POSTERS
Poster #	Paper #	
		Moderator: Roger Thériault (Canada)
		Room: 2000D
23	101428	<b>Velocity of conveyed seeds in an inclined transition tube</b> P. Binsirawanich, S. Noble (Canada)
24	101349	<b>Modeling of soil flow for tillage tools, seeders and planters</b> M. Roberge (Canada)
25	101355	<b>Modeling of crop flow in combine chopper and spreader</b> M. Roberge, J. Benes, H. Isaac (Canada/United States)
26	100239	<b>Influential parameters for designing and power consumption calculating of cumin mower</b> E. Mahmoodi, A. Jafari, S. Rafiee (Iran)

27	101362	<b>Mechanically-aided harvesting of artichoke with an electrically propelled prototype</b> R. Tomasone, M. Pagano, C. Cedrola et al. (Italy)
28	100999	<b>An innovative apparatus provided with a cutting auger for producing short logs for biomass energy from fast-growing tree species</b> G. Colorio, R. Tomasone, C. Cedrola et al. (Italy)
29	100240	<b>Design and manufacturing of a new and simple mechanism for transmission of power between crossover shafts up to 135 degrees</b> M. Yaghoubi, S. Saeid Mohtasebi, A. Jafari et al. (Iran)
30	100034	<b>The design and experimental study of a testing stand for pneumatic seed metering device</b> Z. Manquan, L. Wenzhong, W. Wenming et al. (China)
31	100796	<b>Design and development of a cutter and feeder mechanism for a chick pea harvester</b> H. Mostafavand, S. Kamgar (Iran)

Monday, June 14 – 15:35 to 17:00

<b>38</b>	<b>Section III</b>	<b>Crop Management</b>
Time	Paper #	Moderator: Hubert Landry (Canada) Room: 203
15:35		<b>Session Opening</b>
15:40	100476	<b>Best management practices for operating wind machines for minimizing cold injury in Ontario</b> H. W. Fraser, K. Slingerland, K. Ker (Canada)
16:00	100891	<b>Review of technological advances and technological needs in ecological agriculture (organic farming)</b> H. Chaoui, C. G. Sørensen (Canada/Denmark)
16:20	101106	<b>Controlled traffic farming and minimum tillage: Results of initial experiments and a layout of a long term experiment</b> J. Galambošová, V. Rataj, M. Macák et al. (Slovakia)
16:40	101284	<b>Harvesting canbus data to improve soil compaction management</b> N. Dubuc, V. Raghavan, R. Recker (Canada/USA)

Monday, June 14 – 15:35 to 17:00

<b>39</b>	<b>Section III</b>	<b>Sensors and Measurement</b>
Time	Paper #	Moderator: Noboru Noguchi (Japan) Room: 205A
15:35		<b>Session Opening</b>
15:40	100043	<b>Monitoring of grain quality and segregation of grain according to protein concentration threshold level on an operating combine harvester</b> H. Risius, J. Hahn, H. Korte (Germany)
16:00	100344	<b>Field evaluation and comparison of two silage corn mass flow rate sensors developed for yield monitoring</b> M. Loghavi, M. M. Maharlouie, S. Kamgar (Iran)
16:20	101188	<b>The development of a standard test method for measuring the evenness of flow off meter rollers</b> J. Gervais, S. Noble (Canada)
16:40	101060	<b>A device for extracting 3D information of fertilizer trajectories</b> B. Hijazi, J. Baert, F. Cointault et al. (France)

Tuesday, June 15 – 10:15 to 12:00

<b>53</b>	<b>Section III</b>	<b>Crop Protection and Weed Control (I)</b>
Time	Paper #	Moderator: Bernard Panneton (Canada) Room: 203
10:15		<b>Session Opening</b>
10:20	100076	<b>Liquid distribution of air induction and off-center spray nozzle used to apply agrochemicals in special condition</b> R. G. Viana, J. R. Rosell, L. R. Ferreira et al. (Brazil/Spain)
10:40	101144	<b>Characterizing ambient and spray mixture effects on droplet size represented by water sensitive paper (WSP)</b> S.J. Thomson, M.E. Lyn (United States)
11:00	100931	<b>Development of on-site emulsifying device for production of cooking-oil-based pesticides</b> G.-M. Samuel, M. Amos, E. Yigal et al. (Israel)

11:20	100755	<b>Electronic canopy characterization and real-time variable rate dosing for crop protection in precision fructiculture: Efficiency increase and drift reduction</b> A. Escolà, R. Sanz, J.R. Rosell et al. (Spain)
11:40	100673	<b>The effect of fan frequency on the droplet spraying swath of air blast sprayer</b> S. Song (China)

Tuesday, June 15 – 13:35 to 15:20

<b>68</b>	<b>Section III</b>	<b>Crop Protection and Weed Control (II)</b>
Time	Paper #	Moderator: Cristiano Baldoin (Italy) Room: 203
13:35		<b>Session Opening</b>
13:40	100785	<b>UV-induced fluorescence for discriminating weeds from maize</b> B. Panneton, S. Guillaume, G. Samson et al. (Canada/France)
14:00	100473	<b>Technical approach for row crop seeding in square to improve mechanical weed control efficiency</b> P. S. Lammers, H. Kam, O. Schmittmann (Germany)
14:20	100794	<b>Development of a machine vision system for weed mapping</b> M. C. Da Silva Júnior, F. D. A. De Carvalho Pinto, G. R. Ruiz et al. (Brazil/Spain)
14:40	101091	<b>Innovative strategies for physical weed control on hard surfaces in Central Italy: Results achieved in two different cities</b> A. Peruzzi, L. Lulli, M. Fontanelli et al. (Italy)
15:00	100427	<b>Weed control by water steam using a self-propelled machine equipped with a condensation chamber</b> C. Baldoin, I. Sartorato, D. Friso et al. (Italy)

Tuesday, June 15 – 13:35 to 15:20

<b>69</b>	<b>Section III</b>	<b>Sensors and Precision Agriculture – POSTERS</b>
Poster #	Paper #	Moderator: Noboru Noguchi (Japan) Room: 2000D
42	100428	<b>Mapping of soil variability for increasing precision with managed drought stress phenotyping</b> G. Romano, W. Spreer, J. Cairns et al. (Germany/Mexico)
43	101136	<b>Management zone definition for coffee production system by using soil apparent electrical conductivity</b> D.S.M. Valente, D.M. de Queiroz et al. (Brazil)
44	101419	<b>Remote sensor networks for protected chrysanthemum production</b> H.K. Noh, S.O. Chung (Republic Of Korea)
45	101147	<b>Development of a new system for measuring the coefficient of dynamic friction of agricultural crops</b> J. Razavi, E. Bagvand, A. Hemmat (Iran)
46	101150	<b>Coefficient of restitution of sugarcane billets measurement using an instrumented pendulum system</b> J. Razavi, E. Bagvand, A. Hemmat (Iran)
47	101397	<b>Nitrogen estimation of oilseed rape using spad and Vis/NIR spectroscopy</b> Y. Shao, Y. He (China)
48	100504	<b>Effects of different tillage systems on some soil properties, crop yield and time/fuel consumption for sesame</b> Z. B. Barut, M. M. Turgut, A. Özmerzi (Turkey)
49	101261	<b>High voltage electric field effects on structure and biological characteristics of barley seeds</b> J. Khazaei, E. Aliabadi, A.A. Shayegani (Iran)

Tuesday, June 15 – 15:35 to 17:20

<b>82</b>	<b>Section III</b>	<b>Planting, Seeding and Crop Quality</b>
Time	Paper #	Moderator: Neil McLaughlin (Canada) Room: 205A
15:35		<b>Session Opening</b>
15:40	101037	<b>Design and evaluation of a jab planter</b> J. Smithers, L. Lagrange, B. Fraser et al. (South Africa)
16:00	101142	<b>Determination of forward speed effect on planting uniformity in a sugarcane billet planter</b> J. Razavi, M. Namjoo (Iran)

# LIST OF ABSTRACTS BY PARTICIPATING GROUP

16:20	101280	<b>Reducing the dispersion of seed coating particles containing neonicotinoids in maize seeding</b> D. Pessina, D. Facchinetti (Italy)
16:40	100422	<b>The design and experimental study of a testing stand for pneumatic seed metering device</b> W. Z. Liu (China)
17:00	101043	<b>Determination of crop quality with different types of sugar beet harvesters</b> A. Beyaz, A. Colak, B. Eminoglu et al. (Turkey)

Tuesday, June 15 – 15:35 to 17:20

<b>83</b>	<b>Section III</b>	<b>Crop Protection and Weed Control (III)</b>
Time	Paper #	Moderator: Bernard Panneton (Canada) Room: 203
15:35		<b>Session Opening</b>
15:40	100458	<b>Variable rate technology for herbicide application on railways</b> U. R. Antuniassi, E. D. Velini, H. C. Nogueira et al. (Brazil)
16:00	100947	<b>An approach for pesticide loss estimation adapted to field crops in Mediterranean conditions</b> H. Bahrouni, C. Sinfort, E. Hamza (Tunisia/France)
16:20	100295	<b>Spot-application of pesticide using variable rate sprayer in wild blueberry</b> Q. U. Zaman, A. W. Schumann et al. (Canada/USA)
16:40	100077	<b>Evaluation of backpack sprayers in the herbicide application in a Brazilian forest</b> R. G. Viana, M. S. Machado, L. R. Ferreira et al. (Brazil)
17:00	100789	<b>Weed cover on and between corn rows implications for real-time weed detection</b> L. Longchamps, B. Panneton, M.-J. Simard et al. (Canada)

Wednesday, June 16 – 8:15 to 10:00

<b>97</b>	<b>Section III</b>	<b>Harvest of Fruits and Seeds</b>
Time	Paper #	Moderator: Roger Chagnon (Canada) Room: 203
8:15		<b>Session Opening</b>
8:20	100348	<b>The effects of shaking frequency and amplitude on detachment of Estahban dried fig (Ficus carica cv. Sabz)</b> M. Loghavi, F. Khorsandi, S. Kamgar et al. (Iran)
8:40	100465	<b>Efficient harvesting of haskap berries in Japan</b> L. Fu, H. Okamoto, Y. Hoshino et al. (Japan)
9:00	100714	<b>Determination of the damping coefficient of coffee branches using image processing techniques</b> D. M. De Queiroz, G. P. Villibor, F. De A. C. Pinto et al. (Brazil)
9:20	101499	<b>Red apple juice – development of a new, innovative product</b> R.H.P. Scheyer, H.-P. Schwarz, P. Braun (Germany)

Wednesday, June 16 – 10:15 to 12:00

<b>112</b>	<b>Section III</b>	<b>Harvest of Biomass (I)</b>
Time	Paper #	Moderator: Mark Lefsrud (Canada) Room: 203
10:15		<b>Session Opening</b>
10:20	101026	<b>Quality of wooden chips produced by Claas Jaguar fitted with experimental CRA-ING rotor</b> L. Pari, V. Civitarese, A. Del Giudice (Italy)
10:40	101656	<b>Anderson introduces a new biomass baler</b> L. D'Amour, F. Lavoie (Canada)
11:00	100100	<b>Spring harvest of corn stover</b> P.-L. Lizotte, P. Savoie (Canada)
11:20	100515	<b>Machinery management data for willow harvest with a Bio-baler</b> P. Savoie, P. L. Hébert, F.-S. Robert (Canada)
11:40	100516	<b>Harvest of woody crops with a bio-baler in eight different environments in Minnesota</b> D. Current, P. Savoie, P.L. Hébert et al. (United States/Canada)

Wednesday, June 16 – 10:15 to 12:00

<b>113</b>	<b>Section III</b>	<b>Crop Management and Protection – POSTERS</b>
Poster #	Paper #	Moderator: John K. Schueller (USA) Room: 2000D
30	100799	<b>Comparison of energy requirements of traditional and conservative soil tillage for maize cultivation in central Italy</b> R. Fanigliulo, C. Cervellini, G. Brannetti et al. (Italy)
31	100577	<b>Development of peach harvesting end-effector with function for estimation of degree of ripeness</b> K. Kito, W.X. Lun, H. Goto (Japan)
32	100620	<b>Using artificial neural networks for discrimination the corn plants from the weeds</b> S. Kiani, A. Jafari, Z. Azimifar (Iran)
33	100650	<b>Design of a mechanical release system of Perillus bioculatus to control the Colorado potato beetle, Leptinotarsa decemlineata (SAY)</b> S. De Ladurantaye, M. Khelifi (Canada)
34	100726	<b>Thermal control of hazelnut suckers</b> R. Tomasone, G. Colorio, C. Cedrola et al. (Italy)
35	101089	<b>Mechanical control of quackgrass in grassland</b> R. Khorchani, M. Khelifi, M. Bournival (Canada)
36	101390	<b>Test bench for mechanical distribution of predators to control insect pests</b> M. Khelifi, F. Paré, Y. De Ladurantaye (Canada)
37	100535	<b>Automatic weed control system for processing tomatoes</b> D.C. Slaughter, M. Pérez, C. Gliever et al. (USA/Spain)
38	101083	<b>Innovative strategies and machines for physical weed control in vegetable crops in central and southern Italy</b> A. Peruzzi, M. Fontanelli, C. Frascioni et al. (Italy)
39	101088	<b>Innovative strategies for physical weed control on hard surfaces in urban area in central Italy: Development of new flaming operative machines</b> A. Peruzzi, L. Lulli, M. Fontanelli et al. (Italy)
40	100944	<b>Effects of the machine wheel load on grass yield</b> O. Green, R. N. Jørgensen, K. Kristensen et al. (Denmark)
41	100961	<b>Development of a distribution system for measuring nozzle integrative parameter</b> X. Xue, J. Liang, P. Liu et al. (China/United States)
42	101336	<b>The effect of fan frequency on the droplet spraying swath of air-aided sprayer</b> S. Song, T. Hong, D. Sun et al. (China)

Wednesday, June 16 – 13:35 to 15:20

<b>126</b>	<b>Section III</b>	<b>Harvest of Biomass (II)</b>
Time	Paper #	Moderator: Mark Lefsrud (Canada) Room: 203
13:35		<b>Session Opening</b>
13:40	100098	<b>Corn stover fractions as a function of hybrid, maturity, site and year</b> P.-L. Lizotte, P. Savoie, M. Lefsrud (Canada)
14:00	101005	<b>Simultaneous harvesting of straw and chaff for energy purposes - influence on bale density, yield, field drying process and combustion characteristics</b> G. Lundin, M. Rönnbäck (Sweden)
14:20	101024	<b>Evaluation of chips quality by the analysis of two different harvesting methodologies</b> L. Pari, V. Civitarese, A. Del Giudice (Italy)
14:40	100767	<b>Simulation of hemp fibre bundle and cores using discrete element method</b> M. A.-A. Sadek, Y. Chen, C. Laguë et al. (Canada)
15:00	100981	<b>Economic production and processing of agricultural fibre plants for high quality applications in automotive, building and furniture industry</b> R. Pecenka, C. Füll, H.-J. Gusovius (Germany)

Wednesday, June 16 – 13:35 to 15:20

127	Section III	Design and Modeling
Time	Paper #	Moderator: Claude Laguë (Canada) Room: 205A
13:35		<b>Session Opening</b>
13:40	100238	<b>Dynamic analysis of a tractor engine crankshaft in knocking phenomenon</b> E. Mahmoodi, A. Jafari, S. Rafiee (Iran)
14:00	100768	<b>Decortication of hemp (<i>Cannabis sativa</i>) fibers using drop weight impact: Fiber yield and properties</b> Md. M. R. Khan, Y. Chen, C. Laguë et al. (Canada)
14:20	100769	<b>Theoretical analysis of energy requirement for hemp decorticators</b> J. Xu, Y. Chen, C. Laguë et al. (Canada)
14:40	101065	<b>Aerodynamic properties of hemp fibre and core</b> S. Parvin, Y. Chen, C. Laguë et al. (Canada)
15:00	100266	<b>Development of a system for pattern operations</b> M. Gebben, G. Kormann (Germany)

Abstract only	100240	<b>Design and manufacture of a new and simple mechanism for transmission of power between crossover shafts up to 135 degrees for farm machinery</b> M. Yaghoubi, S.S. Mohtasebi, A. Jafari, H. Khaleghi (Iran)
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## SECTION IV Energy in Agriculture

Monday, June 14 – 10:15 to 12:00

10	Section IV	Analysis of Biogas Production
Time	Paper #	Moderator: Jay Martin (USA) Room: 2102B
10:15		<b>Session Opening</b>
10:20	100688	<b>Life cycle assessment of agricultural biogas production systems</b> J. Lansche, J. Müller (Germany)
10:40	101095	<b>Anaerobic digestion and related best management practices: Utilizing life cycle assessment</b> M.Z. Venczel, S.E. Powers (United States)
11:00	101515	<b>Positioning anaerobic digestion systems in the swine sector in Québec: A technical and economic study</b> M.-A. Ricard, C.B. Laflamme, C. Charest et al. (Canada/France)
11:20	101132	<b>Biogas production from separated slurry as a slurry management strategy: A consequential life cycle assessment</b> L. Hamelin, M. Wesnæs, H. Wenzel et al. (Denmark)
11:40	101633	<b>Techno-economic assessment of anaerobic digestion systems for agri-food wastes</b> A. Lau, S. Baldwin, M. Wang (Canada)

Monday, June 14 – 13:35 to 15:20

25	Section IV	Design Issues for Biogas Production
Time	Paper #	Moderator: Zoltán Sibalszky (Hungary) Room: 2102B
13:35		<b>Session Opening</b>
13:40	100658	<b>Optimization and control of a novel upflow anaerobic solid-state (UASS) reactor</b> J. Mumme, B. Linke, R. Tölle (Germany)
14:00	100724	<b>Drying characteristics and nitrogen loss of biogas digestate during drying process</b> C. Maurer, J. Müller (Germany)
14:20	101041	<b>Biodrying of animal slaughterhouse residues and heat production</b> Yves Bernard (Canada)
14:40	101578	<b>Transforming anaerobic digestion with the 'Model T' of digesters</b> J.F. Martin, R. Ciotola, J. Castano et al. (United States)
15:00	101311	<b>Bioreactors</b> E. Jamaledine (Canada)

Monday, June 14 – 15:35 to 17:00

40	Section IV	Management and Biogas Production (joint with AEES*)
Time	Paper #	Moderator: Frédéric Pelletier (Canada) Room: 2102B
15:35		<b>Session Opening</b>
15:40	101387*	<b>Microbial community analysis of ambient temperature anaerobic digesters</b> R. Ciotola (United States)
16:00	101597*	<b>Gas production analysis of a fixed-dome digester operated under temperate climates in central Ohio</b> J. Castano, J. Martin, R. Ciotola et al. (United States)
16:20	101113	<b>Impact of harvesting time on ultimate methane yield of switchgrass grown in Eastern Canada</b> Y. Gilbert, D. Massé, P. Savoie et al. (Canada)
16:40	101052	<b>Farm-scale anaerobic digestion of beef and dairy cattle manure for energy cogeneration at two farms in Canada</b> N. Patni, C. Monreal, X. Li et al. (Canada)

Tuesday, June 15 – 10:15 to 12:00

54	Section IV	Biofuels
Time	Paper #	Moderator: Guillaume Pilon (Canada) Room: 2102B
10:15		<b>Session Opening</b>
10:20	100337	<b>Potentials of biofuels</b> A. Munack, J. Krahel, O. Schröder et al. (Germany)
10:40	100880	<b>Numerical investigation of a bubble-column photo-bioreactor design for biodiesel production from microalgae</b> I.-H. Seo, I.-B. Lee, H.-S. Hwang et al. (Korea)
11:00	101073	<b>Energy and CO<sub>2</sub> eq analysis of the agricultural phase in the sunflower biodiesel chain</b> P. Spagnoli, R. Dainelli, L. D'Avino et al. (Italy)
11:20	101214	<b>Energy analysis of biochemical conversion processes of biomass to bioethanol</b> M.D. Bakari, M. Ngadi, T. Berghthorson (Canada)
11:40	101283	<b>Cultivation and utilization of specific wood biomass for synthesis of cellulose based bioethanol</b> L. Fara, C. Cincu, G. Hubca et al. (Romania)

Tuesday, June 15 – 13:35 to 15:20

70	Section IV	Combustion and GHG
Time	Paper #	Moderator: Amit Kumar (Canada) Room: 2102B
13:35		<b>Session Opening</b>
13:40	100457	<b>A review of standards related to biomass combustion</b> J. Villeneuve, P. Savoie (Canada)
14:00	100459	<b>Handling of corn stover bales for combustion in small and large furnaces</b> R. Morissette, P. Savoie, J. Villeneuve (Canada)
14:20	100804	<b>Power from triticale straw</b> M. Dassanayake, A. Kumar (Canada)
14:40	100941	<b>Greenhouse gas mitigation potential of short-rotation-coppice based generation of electricity in Germany</b> A. Hansen, A. M.-A., J. Kern et al. (Germany)
15:00	100434	<b>Energy and greenhouse gas emissions of Australian cotton: from field to fabric</b> B. G. Khabbaz, G. Chen, C. Baillie (Australia)

Tuesday, June 15 – 15:35 to 17:20

84	Section IV	Biochar and Energy
Time	Paper #	Moderator: Axel Munack (Germany) Room: 2102B
15:35		<b>Session Opening</b>
15:40	100296	<b>Utilization of residual biochar produced from the pyrolysis of energy crops for soil enrichment</b> G. Pilon, J.-M. Lavoie (Canada)
16:00	100429	<b>Material and operating variables affecting the physical quality of biomass briquettes</b> Y. Song, J. S. Tumuluru, K. L. Iroba et al. (China/Canada)
16:20	100827	<b>Biochar production for carbon sequestration</b> J. Thakkar, A. Kumar (Canada)

# LIST OF ABSTRACTS BY PARTICIPATING GROUP

16:40	101374	<b>Vacuum pyrolysis of swine manure: Biochar production and characteristics</b> M. Verma, S. Godbout, J.P. Larouche et al. (Canada)
17:00	101421	<b>Characteristics of paddy operations with biodiesel fuelled tractor</b> Y. Kim, S.H. Park, C. K. Kim et al. (Republic Of Korea)

Wednesday, June 16 – 8:15 to 10:00

<b>98</b>	<b>Section IV</b>	<b>Renewable Energy and Assessment</b>
Time	Paper #	Moderator: Guangnan Chen (Australia) Room: 2102B
8:15		<b>Session Opening</b>
8:20	101116	<b>Investigating design criteria to build a performing microbial fuel cell running on swine liquid manure</b> D.Y. Martin, R. Hogue, P. Dubé et al. (Canada)
8:40	101564	<b>Continuous fermentative hydrogen production in different process conditions</b> N. Nasirian, M. Almassi, S. Minaee et al. (Iran/Germany)
9:00	101636	<b>Centrifugal potential energy: An astounding renewable energy concept</b> I.A. Oduniyi (Nigeria)
9:20	100776	<b>Evaluation of an earth heat storage system in a solar energy greenhouse</b> Q. Zhang, J. Langrell, R. Boris (Canada)
9:40	100435	<b>Energy usage for cotton ginning in Australia</b> S.A. Ismail, G. Chen, C. Baillie et al. (Malaysia/Australia)

Wednesday, June 16 – 10:15 to 12:00

<b>114</b>	<b>Section IV</b>	<b>Biofuels and Biogas – POSTERS</b>
Poster #	Paper #	Moderator: Naveen Patni (Canada) Room: 2000D
43	100404	<b>Different purification methods and quality of sunflower biodiesel</b> A.L.M.T. Pighinelli, R.A. Ferrari, A.M.R.O Miguel et al. (Brazil)
44	100982	<b>Using pre-heated sunflower oil as fuel in a diesel cycle engine</b> H. C. Delalibera, P. H. W. Neto, J. Martini (Brazil)
45	101467	<b>Production of microscopic algae for its consequent use as aviation fuel</b> T. Maekawa, J. Jia, K. Intabon et al. (Japan)
46	100646	<b>Use of farm waste biomass in the process of gasification for energy production</b> J. Piechocki (Poland)
47	100839	<b>Gasification of waste from furniture industries for generation of sustainable energy</b> J. L. Oliveira, J. N. Silva, E. G. Pereira et al. (Brazil)
48	100492	<b>Development of a biogas purifier for rural areas in Japan</b> Y. Kimura, S. Yasui, T. Hinata et al. (Japan)
49	101302	<b>Design of a 60MW CFB gasification system (CGAS) for Uganda- Utilising rice husks as input fuel</b> F. Amanyire, D.B. Bagamuhunda (Uganda)

Wednesday, June 16 – 13:35 to 15:20

<b>128</b>	<b>Section IV</b>	<b>Biomass, Compost and Energy Assessment - POSTERS</b>
Poster #	Paper #	Moderator: Yannick de la Durantaye (Canada) Room: 2000D
66	100447	<b>Preliminary investigation into the pressing process of sweet pearl millet and sweet sorghum biomass for ethanol production</b> M. Crépeau, M. Khelifi, A. Vanasse (Canada)
67	100527	<b>Engineering developments for small-scale harvest, storage and combustion of woody crops in Canada</b> P. Savoie, C. Ouellet-Plamondon, R. Morissette et al. (Canada)
68	100576	<b>Food and biomass production in small oil expression facilities</b> H. Kato, G. Kanai, K. Yakushido (Japan)
69	101133	<b>Electrical energy use in different heating systems for early weaned piglets</b> J. Sarubbi, L.A. Rossi, D.J. Moura et al. (Brazil)

70	100778	<b>Determination of pressure distribution in an aerated bed in a controlled pilot-scale compost reactor</b> P. Solowiej (Poland)
71	100779	<b>Controlling the process of composting farm biomass with the use of fuzzy logic</b> M. Neugebauer (Poland)
72	101186	<b>Efficiency of the heat pump cooperating with various heat sources in monovalent and bivalent systems</b> S. Kurpaska, H. Latala (Poland)
73	101661	<b>Integration of PV modules in existing Romanian buildings from rural areas</b> S. Fara, D. Finta, L. Fara et al. (Romania)
74	100987	<b>Experiences on the integration of thin film photovoltaic modules in a Mediterranean greenhouse</b> R. Ureña, J. Pérez, M. Pérez et al. (Spain)
75	100991	<b>Energy use in legume cultivation over Turkey</b> C. Ertekin, M. Canakci, R. Kulcu et al. (Turkey)

## SECTION V

### Management, Ergonomics and Systems Engineering

Monday, June 14 – 10:15 to 12:00

<b>11</b>	<b>Section V</b>	<b>Ergonomics and Agriculture – POSTERS</b>
Poster #	Paper #	Moderator: Katja Heitkampfer (Switzerland) Room: 2000D
9	100815	<b>“APR System”, a new design to increase workers safety in greenhouses maintenance operations</b> A. Carreño, J. Perez, A. Callejon et al. (Spain)
10	101197	<b>Postural analysis and biomechanics of workers in poultry slaughterhouse</b> C. da C.S. Carvalho, C. de F. Souza, I. de F.F. Tinôco et al. (Brazil)
11	101243	<b>The role of the web in the effective detection of serious and fatal tractor overturning accidents</b> D. Pessina, D. Facchinetti (Italy)
12	100994	<b>Approach to heat stress management in the construction industry Mediterranean greenhouses</b> J. Pérez, A. Carreño, A. J. Callejón et al. (Spain)

Monday, June 14 – 13:35 to 15:20

<b>26</b>	<b>Section V</b>	<b>Ergonomics and Safety</b>
Time	Paper #	Moderator: Ladislav Nozdrovicky (Slovakia) Room: 2105
13:35		<b>Session Opening</b>
13:40	100263	<b>Ergonomic aspects of operation of IT systems in precision agriculture</b> T. Juliszewski, M. Walczykova (Poland)
14:00	100312	<b>Work economics and ergonomics in dairy farming</b> K. Heitkampfer, M. Riegel, M. Schick (Switzerland)
14:20	101064	<b>A predictive model for the vibration risk evaluation in agricultural machinery use</b> D. Pessina, V. Bonalume (Italy)
14:40	101482	<b>Definition of unambiguous criteria to evaluate tractor ROPS equivalence</b> D. Pessina, D. Facchinetti, M. Belli (Italy)
15:00	101510	<b>Effectiveness of agricultural tractors cabs for protection against hazardous substances in accordance with EN 15695 part 1</b> E. Cavallo (Italy)

Monday, June 14 – 15:35 to 17:00

<b>41</b>	<b>Section V</b>	<b>Technology for Improved Management – POSTERS</b>
Poster #	Paper #	Moderator: Remigio Berruto (Italy) Room: 2000D
62	100948	<b>Power spectral analysis of agricultural field surfaces</b> M. Cutini, C. Bisaglia, S. A. Bertinotti (Italy)
63	101086	<b>Radio frequency identification technologies for traceability of potted flowering plants</b> C. Tortia, P. Barge, P. Gay et al. (Italy)



64	101038	<b>First approach to correlate the tire contact area to traction force in the field</b> E. Romano, M. Cutini, C. Bisaglia et al. (Italy)
65	100972	<b>A new approach for in situ poultry carcasses disposal: A closed semi-continuous composter</b> A. C. Guimaraes, M. S. Bascones, L. M. Navas Gracia et al. (Spain)
66	100498	<b>Comparison of useful life of tractors by condition monitoring and breakdown maintenance in Iran</b> H. M. Meighani, A. Mohammadi (Iran)
67	101549	<b>Use of electronic devices in combine harvesters: A case study for Antalya Region in Turkey</b> D. Yilmaz, M. Canakci, I. Akinci (Turkey)
68	100740	<b>Power and energy requirements of agricultural machinery driven by tractor used on greenhouse vegetable production in Turkey</b> M. Canakci, I. Akinci (Turkey)
69	100497	<b>Investigating JD3140 tractor breakdowns and their reasons</b> H. M. Meighani, A. Mohammadi, M. Raoufi (Iran)
70	100499	<b>Design and manufacturing a new platform for rapeseed harvesting in Iran</b> H. M. Meighani, A. H. Mohseni, S. Ebrahimi (Iran)

Tuesday, June 15 – 10:15 to 12:00

<b>55</b>	<b>Section V</b>	<b>Human Workload in Agriculture</b>
Time	Paper #	Moderator: Tadeusz Juliszewski (Poland) Room: 204B
10:15		<b>Session Opening</b>
10:20	100950	<b>Using the CUELA system to study workload in agriculture</b> M. Kauke, I. Hermanns, U. Hoehne-Hückstädt et al. (Switzerland/Germany)
10:40	100313	<b>Workload assessment in agriculture – integration in a work budget system</b> K. Heitkampfer, M. Schick, R. Stark et al. (Switzerland)
11:00	100956	<b>Analysis and assessment of workload in different types of milking parlours using the CUELA-System</b> M. Kauke, U. Hoehne-Hückstädt, I. Hermanns et al. (Switzerland/Germany)
11:20	100946	<b>Calculation and planning farm management tasks in pig and dairy farming</b> C. Moriz (Switzerland)
11:40	101008	<b>Development of an experimental system for agricultural work process measurement</b> A. Bechar, A. Ronen (Israel)

Tuesday, June 15 – 13:35 to 15:20

<b>71</b>	<b>Section V</b>	<b>Crop and Biomass Logistics (I)</b>
Time	Paper #	Moderator: Elisabeth Quendler (Austria) Room: 204B
13:35		<b>Session Opening</b>
13:40	100962	<b>Calculation of transportation energy for biomass collection</b> G. Kanai, K. Takekura, H. Kato et al. (Japan)
14:00	100905	<b>Agricultural fleet management: An operational research approach</b> D. D. Bochtis, C. G. Sørensen (Denmark)
14:20	101347	<b>Interfacing feedstock logistics with bioenergy conversion</b> S. Sokhansanj (Canada)
14:40	100374	<b>Energy expense by logistics within sugarcane's energy production chain -two case studies</b> T.L. Romanelli, R. Berruto, P. Busato et al. (Brazil/Italy)
15:00	101018	<b>Technological and organizational development potentialities for grain logistic in Germany</b> H. Bernhardt, W. Lixfeld, D. Engelhardt (Germany)

Wednesday, June 16 – 8:15 to 10:00

<b>99</b>	<b>Section V</b>	<b>Logistics and Knowledge Transfer</b>
Time	Paper #	Moderator: Claus Gron Soerensen (Denmark) Room: 204B
8:15		<b>Session Opening</b>

8:20	101097	<b>Online model predictive monitoring for controlling and optimizing the performance of agricultural production processes</b> K. Mertens, B. De Ketelaere, J. De Baerdemaeker (Belgium)
8:40	100700	<b>Tractor based services and related support policies in developing countries</b> J. Kienzie, W. Hancox, J. Ashburner (Italy/UK )
9:00	100526	<b>Dynamic role of reverse logistic cycle with in life cycle analysis for sustainability</b> Z. Ali-Qureshi (Canada)
9:20	100315	<b>Development of criteria and indicators for monitoring progress towards sustainable remediation</b> I. S. Dunmade (Canada)
9:40	100471	<b>Knowledge transfer model for agricultural engineering</b> E. Quendle, J. Boxberger (Austria)

## SECTION VI Postharvest Technology and Process Engineering

Monday, June 14 – 10:15 to 12:00

<b>12</b>	<b>Section VI</b>	<b>Food Processing (I)</b>
Time	Paper #	Moderator: Shujun Li (China) Room: 2104AB
10:15		<b>Session Opening</b>
10:20	100069	<b>Development of model equations for selecting optimum parameters for dry process of shea butter extraction</b> A. M. Olaniyan, K. Oje (Nigeria)
10:40	100336	<b>Acrylamide mitigation in fried potato slices by using commercial asparaginase</b> F. Pedreschi, K. Granby, J. Risum (Chile/Denmark)
11:00	100630	<b>Microwave-assisted separation of eggshell and membrane</b> A. Hussain, S. Dev, Y. Garipey et al. (Canada)
11:20	101048	<b>Prediction of lactic-bacteria growth in turkey ham processed by high hydrostatic pressure</b> S.P. Mathias, A. Rosenthal, A. Gaspar et al. (Brazil/France)
11:40	100200	<b>Combined effects of freezing and storage conditions on the staling of cooked rice</b> S. F. Yu, Y. Ma, D. Tian et al. (China/Ireland)

Monday, June 14 – 10:15 to 12:00

<b>13</b>	<b>Section VI</b>	<b>Nutraceuticals and Functional Foods (I)</b>
Time	Paper #	Moderator: Valérie Orsat (Canada) Room: 2105
10:15		<b>Session Opening</b>
10:20	100555	<b>Microwave extraction of myrtillin from blueberry</b> W. Routray, V. Orsat (Canada)
10:40	100558	<b>Radio frequency assisted extraction of nutraceutical compounds</b> Y.M. Jusoh, V. Orsat, Y. Gariépy (Canada)
11:00	101304	<b>Continuous and pulsed ultrasound-assisted extractions of antioxidants from pomegranate peel</b> W. Qu, Z. Pan, H. Ma et al. (United States/China)
11:20	101320	<b>Antioxidant enrichment of cranberry juice by electrodialysis with filtration membrane : Impact of process on juice composition</b> L. Bazinet, S. Brianceau, Y. Desjardins (Canada)
11:40	100862	<b>A novel technique for producing zanthoxylum oil particles based on supercritical CO<sub>2</sub> extraction and microencapsulation methods</b> I. Chen (China)

Monday, June 14 – 13:35 to 15:20

<b>27</b>	<b>Section VI</b>	<b>Food Processing (II)</b>
Time	Paper #	Moderator: Alain Le-Bail (France) Room: 2104AB
13:35		<b>Session Opening</b>
13:40	101376	<b>Migration of perfluorinated compounds from antistick coating to food products during cooking processes</b> A. Le-Bail, B. Veyrand, S. Durand et al. (France)

# LIST OF ABSTRACTS BY PARTICIPATING GROUP

14:00	101078	<b>Study the effect of two different edible coating on walnut kernel shelf life</b> R. Bastani, M. Rahemi, N. Mafoonazad et al. (Iran/Canada)
14:20	101290	<b>Effect of microwave radiation on starch digestibility and physico-chemical properties of three barley types</b> S. Emami, A. Perera, V. Meda et al. (Canada)
14:40	101344	<b>Mango (<i>Mangifera indica</i>) and ambarella (<i>Spondias cytherea</i>) peel extracted pectins improve viscoelastic properties of derived jams</b> G. Kansci, B.B. Koubala, C. Garnier et al. (Cameroon/France)
15:00	101206	<b>Development and commercialization of emerging infrared radiation food processing technologies</b> Z. Pan, G.G. Atungulu, G. Bingol et al. (United States)

Monday, June 14 – 13:35 to 15:20

<b>28</b>	<b>Section VI</b>	<b>Spectroscopy and Image Analysis – POSTERS</b>
Poster #	Paper #	Moderator: Da-Wen Sun (Ireland) Room: 2000D
32	100967	<b>Testing of a NIR system for the optimization of stored apples management</b> R. Beghi, E. Casiraghi, N. Sinelli et al. (Italy)
33	100601	<b>A novel computer vision system for specifically detecting rotten citrus</b> J. Blasco-Ivars (Spain)
34	100602	<b>Analysis of the movement of fruits during mechanical harvesting with shakers using computer vision and a slow motion camera</b> J. Blasco, A. Torregrosa, N. Aleixos et al. (Spain)
35	100631	<b>Determination of metals in organic pulp and juices by fluorescence X-ray</b> G. A. Camargo (Brazil)
36	100917	<b>Investigation on fatty acid composition of Japanese black wagyu beef by ATR-FTIR spectroscopy and chemometric analysis</b> X. Hu, K. Toyoda, M. Yamanoue, I. Ihara et al. (Japan)
37	100978	<b>Identification and classification of out of control measurements of a NIR spectrometer under industrial use for onion quality determination</b> J. Ortiz-Cañavate, A. Moya-González, P. Barreiro (Spain)
38	101092	<b>Browning kinetics evaluation using image processing techniques</b> L. Comba, P. Gay, P. Piccarolo et al. (Italy)
39	101134	<b>Application of hyperspectral imaging technique for determination of pork quality attributes</b> D.F. Barbin, G. Elmasry, D.-W. Sun et al. (Ireland)
40	101148	<b>Use of hyperspectral imaging for the quality classification of cooked turkey hams</b> A. Iqbal, G. Elmasry, D.-W. Sun et al. (Ireland)
41	101173	<b>Adjusted methodology for determining residence time by image analysis on a vibro-fluidized dryer</b> R.A. De Oliveira, K.J. Park, B.S. Oliveira (Brazil)
42	101473	<b>Prediction of melon fruit firmness using Vis/NIR diffuse reflectance spectroscopy</b> S.H. Yu, S.R. Suh, K.H. Lee et al. (Republic Of Korea)
43	101492	<b>Discrimination of lamb muscles by NIR hyperspectral imaging</b> M. Kamruzzaman, G. Elmasry, D.-W. Sun et al. (Ireland)
44	100265	<b>Non-destructive measurement of SSC, pH, firmness and density of 'Dangshan' pear using FT-NIR spectrometry</b> K. J. Chen, L. Yang, X. Sun (China)
45	100264	<b>Classification of pre-sliced ham images with quaternionic singular values using an adaptive multilayer perceptron</b> N. A. Valous, D.-W. Sun (Ireland)

Monday, June 14 – 13:35 to 15:20

<b>29</b>	<b>Section VI</b>	<b>Food Properties (I) – POSTERS</b>
Poster #	Paper #	Moderator: Satyanarayan R.S. Dev (Canada) Room: 2000D
46	100433	<b>Dimension characteristics evaluation of coffee berries during drying</b> G.H.H. Oliveira, P.C. Corrêa, F.M. Botelho et al. (Brazil)
47	100493	<b>Thermal characteristics of gelatin extracted from emperor (shaari) skin: effects of acid concentration and temperature of extraction</b> G. Al-Saidi, M. S. Rahman, A. Al-Alawi et al. (Oman)
48	100710	<b>Rheological characteristics of assai and passion fruit smoothies fortified with unripe banana pulp</b> G. A. Camargo, J. Mieli, S. C. S. R. De Moura et al. (Brazil)
49	100733	<b>Water vapor permeability, contact angle and water solubility of zein biofilms</b> J.F. Lopes-Filho, C.B. Almeida, L.L. Tavares et al. (Brazil)
50	101069	<b>Orange fruit rheometrical characterization using stress-relaxation tests</b> F. Pallottino, M. Moresi, S. Giorgi et al. (Italy)
51	101109	<b>Analysis of thermodynamic properties of coffee berries during drying</b> G.H.H. Oliveira, P.C. Corrêa, F.M. Botelho et al. (Brazil)
52	101111	<b>Monitoring of coagulation process of soymilk by an integrated electrical sensing and control system</b> K. Toyoda, X. Li (Japan/China)
53	100618	<b>Modeling and statistical characterization of the size and mass distribution of raisin berries</b> A. Arabhosseini, N. Karimi, M. H. Kianmehr et al. (Iran)

Monday, June 14 – 15:35 to 17:00

<b>42</b>	<b>Section VI</b>	<b>Food Processing (III)</b>
Time	Paper #	Moderator: Martin Mondor (Canada) Room: 2104AB
15:35		<b>Session Opening</b>
15:40	100742	<b>Solvent recovery by membrane filtration from extract of raspberry marc</b> Z. Molnár, K. Özdemir, E. Békássy-Molnár et al. (Hungary)
16:00	101303	<b>Applications of membrane technologies for today and tomorrow</b> M. Mondor, F. Lamarche, D. Ippersiel et al. (Canada)
16:20	101205	<b>Fermenters with magnetic fields for agriculture. Technological and practical issues</b> S.M.M. Diego, C.M. Manrique, F.S. Ricardo et al. (Cuba/Brazil)
16:40	101062	<b>Enhancement of extraction efficiency of citrus juice and sacs by twin oblique air jet moves in 3D space</b> M. R. Mirian, J. Khazaei (Iran)

Monday, June 14 – 15:35 to 17:00

<b>43</b>	<b>Section VI</b>	<b>Nutraceuticals and Functional Foods (II)</b>
Time	Paper #	Moderator: Vijaya Raghavan (Canada) Room: 2105
15:35		<b>Session Opening</b>
15:40	100694	<b>Using plant macromolecules to produce flavor microcapsules by spray-drying multilayered oil/water emulsions</b> A. Gharsallaoui, O. Chambin, R. Saurel (France)
16:00	100781	<b>Microwave-assisted methodology for quantitative analysis of lignans in foods</b> S. M. Nemes, V. Orsat, G. S. V. Raghavan (Canada)
16:20	101279	<b>Diversity of fruit origin by using 26S rDNA fingerprinting of yeast communities by PCR-DGGE: An application to shea tree fruits</b> A.F. El Sheikha, J.-M. Bouvet, D. Montet (Egypt/France)
16:40	100612	<b>Aroma properties of selected local spices in Akwa Ibom State of Nigeria</b> A. F. Alonge, E. U.U. Ituen et al. (Nigeria)

Monday, June 14 – 15:35 to 17:00

<b>44</b>	<b>Section VI</b>	<b>Drying, Dehydration and Deactivation – POSTERS</b>
Poster #	Paper #	Moderator: Sébastien Villeneuve (Canada) Room: 2000D
71	100267	<b>Effect of different variables on microwave osmotic dehydration under spray mode (MWODS) of apple cylinder using response surface methodology</b> E. Azarpazhooh, H. S. Ramaswamy (Canada)
72	101272	<b>Effect of packaging and preservation methods on the qualitative and sensory characteristics of dehydrated Jujuba fruit</b> E. Azarpazhooh, S. Nikkhah (Iran)
73	100965	<b>Quality of the pulped cherry coffee subjected to continuous and intermittent drying</b> J. N. Da Silva, S. Martin, S.M. Lopes Donzeles et al. (Brazil)
74	101103	<b>Thin-layer drying behaviour of coffee berries</b> A.L.D. Goneli, P.C. Corrêa, G.H.H. Oliveira et al. (Brazil)
75	101317	<b>Effect of drying temperature on structure of pasta enriched with pea protein isolate</b> S. Mercier, S. Villeneuve, L.-P. Des Marchais et al. (Canada)
76	101329	<b>Experimental study of banana drying energy costs in a prototype electric drier</b> A. Talla, Y. Jannot, G.E. Nkeng (Cameroon/France)
77	100463	<b>Pulsed electric fields and microfiltration hurdle treatment for the implementation of microbial safety in milk</b> M. Walkling-Ribeiro, O. Rodríguez-González et al. (Canada)
78	101209	<b>Use of a novel in-package ozonation process for reducing Salmonella enteritidis on chicken meat</b> J. Jensen, A. Donner, K.M. Keener (United States)
79	101316	<b>Modelling and simulation of processes by smart sensing: A solar dryer for plant material</b> E.C. Correa, B. Diezma, M. Ruiz-Altisent (Spain)
80	101029	<b>Thin layer drying of sliced squash by forced convection</b> C. Ertekin, O. Yaldiz (Turkey)
81	101658	<b>Drying of dates in Oman using a solar tunnel dryer</b> M.A. Basunia, H.H. Handali, M.I. Al-Balushi et al. (Oman)

Tuesday, June 15 – 10:15 to 12:00

<b>56</b>	<b>Section VI</b>	<b>Food Processing (IV)</b>
Time	Paper #	Moderator: Michael Ngadi (Canada) Room: 2104AB
10:15		<b>Session Opening</b>
10:20	101218	<b>Effect of thermal pretreatment and batter composition on fat absorption in deep-fat fried batter</b> N. Abdel-Nour, M. Ngadi, A.A. Adedeji (Canada)
10:40	101217	<b>Modelisation of pulsed electric fields for tropical liquid food industrial processing</b> A. Youmssi, G.J. Kayem, F. Sirois et al. (Canada)
11:00	101377	<b>Impact of bread making process on quality parameters, nutrition, parameters and energy demand; key results from the EU-FRESHBAKE project</b> A. Le-Bail (France)
11:20	101183	<b>Shelf-life determination of “queso doble crema” by means of electronic nose</b> D.P. Osorio, C.F. Novoa, L.-F. Gutiérrez (Colombia/Canada)
11:40	101343	<b>Nutritional quality and lipid oxidation of plantain chips from small scale producers in Cameroon: Correlation with frying procedures</b> G. Kansci, E. Fokou, J. Mekoue et al. (Cameroon/France)

Tuesday, June 15 – 10:15 to 12:00

<b>57</b>	<b>Section VI</b>	<b>Food Properties (I)</b>
Time	Paper #	Moderator: Cristina Ratti (Canada) Room: 2105
10:15		<b>Session Opening</b>
10:20	100242	<b>Thermo-physical and textural properties of meat and carrot alginate particles fabricated for biological validation studies</b> H. F. Hassan, H. S. Ramaswamy (Canada)

10:40	100482	<b>Physico-chemical characteristics of wheat distiller's grains with solubles</b> M. R. Mosqueda, L. G. Tabil (Canada)
11:00	100491	<b>Quality assessment of microwave pasteurized in-shell eggs</b> S.R.S. Dev, Y. Gariépy, V. Orsat (Canada)
11:20	100522	<b>Establishing moisture sorption isotherms of wild mushroom varieties using a dynamic vapor sorption method</b> D. Argyropoulos, A. Rainer, J. Mueller (Germany)
11:40	100581	<b>Prediction of total soluble solids and firmness of carrot based on carrot water content</b> M. Rashidi, B.G. Khabbaz (Iran/Australia)

Tuesday, June 15 – 10:15 to 12:00

<b>58</b>	<b>Section VI</b>	<b>Nutraceutical and Functional Foods– POSTERS</b>
Poster #	Paper #	Moderator: Laurent Bazinet (Canada) Room: 2000D
8	100553	<b>Enhancing the polyphenolic content of elderberries by pulsed ultraviolet treatments</b> R. Murugesan, V. Orsat (Canada)
9	100557	<b>Bioactive gouda cheese powders obtained by spray and freeze-drying</b> H. Ben Abdelkader, C. Ratti (Canada)
10	100614	<b>Microwave assisted drying of flax straw and fibre at controlled temperatures</b> G. R. Nair, K. Eggie, Y. Gariépy et al. (Canada)
11	100819	<b>Optimization of microwave assisted extraction of antioxidants from potato peel</b> A. Singh, K. Sabally, S. Kubow et al. (Canada)
12	100828	<b>Agave juice as an agent for probiotic encapsulation by spray drying</b> C. Cortés-Arminio, A. López-Malo, E. Palou et al. (Mexico)
13	101120	<b>Influence of conjugated linoleic acid (CLA) supplementation on probiotic bacteria viability and sensory properties of stirred yogurt</b> M.R. Barón, R.D. Godoy-Silva, L.-F. Gutiérrez (Colombia)
14	101321	<b>Effect of process unit operation and long term storage on EGCG-enriched tea drink catechin stability</b> L. Bazinet, M. Araya-Farias, A. Doyen et al. (Canada)
15	101108	<b>Microencapsulation of fish oil into cross-linked whey protein matrix</b> R. Safari, R. Kadkhodaei, R. Valizadeh et al. (Iran)

Tuesday, June 15 – 13:35 to 15:20

<b>72</b>	<b>Section VI</b>	<b>Drying and Dehydration (I)</b>
Time	Paper #	Moderator: Paolo Menesatti (Italy) Room: 2104AB
13:35		<b>Session Opening</b>
13:40	100446	<b>Dryer evaluation to optimize small-scale litchi processing in northern Thailand</b> M. Precoppe, M. Nagle, S. Janjai et al. (Germany/Thailand)
14:00	100464	<b>Drying characteristics and lysine content of wheat distillers grains with solubles under three drying methods</b> M. R. P. Mosqueda, L. G. Tabil, jr (Canada)
14:20	100540	<b>Reducing fossil energy consumption of a belt dryer by using biogas waste heat</b> M. Böhner, P. Senckenberg, A. Heindl et al. (Germany)
14:40	100664	<b>Shrinkage effect on moisture diffusivity calculation during superheated steam drying of distiller's spent grain</b> M. Zielinska, S. Cenkowski (Canada)
15:00	100935	<b>Evaluation of operative aspects of a heat pump to dry chestnuts</b> R. Guidetti, M. Fiala, R. Beghi et al. (Italy)

Tuesday, June 15 – 13:35 to 15:20

<b>73</b>	<b>Section VI</b>	<b>Food Properties (II)</b>
Time	Paper #	Moderator: Damien de Halleux (Canada) Room: 2105
13:35		<b>Session Opening</b>

# LIST OF ABSTRACTS BY PARTICIPATING GROUP

13:40	100665	<b>Shrinkage, density and porosity changes during superheated steam drying of distiller's spent grain</b> M. Zielinska, S. Cenkowski (Canada)
14:00	100843	<b>Moisture-dependent color characteristics of walnuts</b> R. Khir, Z. Pan, G. G. Atungulu et al. (USA/Egypt/China)
14:20	101536	<b>Sensory evaluation of standard hard cheese minas added with Brazil nut – a high antioxidant delicacy</b> C. Pereira, C.A.P. Schmidt, R.Y. Ishihara et al. (Brazil)
14:40	100534	<b>Preliminary study on the preparation of a new flocculant and the application on treatment of potato starch wastewater</b> X. An, L. Shujun, L. Yaling et al. (China)
15:00	100609	<b>Properties of coconut (Cocos nucifera L.) relevant to its dehushing</b> A.F. Alonge, W.B. Adetunji (Nigeria)

Tuesday, June 15 – 15:35 to 17:20

<b>86</b>	<b>Section VI</b>	<b>Drying and Dehydration (II)</b>
Time	Paper #	Moderator: Michèle Marcotte (Canada) Room: 2104AB
15:35		<b>Session Opening</b>
15:40	100966	<b>Evaluation of coffee drying costs: Pre-drying on a concrete terrace and complementary drying in a concurrent and countercurrent flow dryer</b> S. Martin, J. N. Da Silva, S. F. Soria Galvarro et al. (Brazil)
16:00	101172	<b>Reconditioning by filtration with earth diatomaceous and reusing the sucrose syrup for osmotic dehydration of peaches</b> S.P.M. Germer, M.R. Queiroz, J.M. Aguirre et al. (Brazil)
16:20	101231	<b>Effects of microwave drying and cooking on the hardness and stickiness of red lentils</b> A. Opoku, L. Tabil, V. Meda (Canada)
16:40	101498	<b>Skim milk cryoconcentration and assessment of its physico-chemical, thermal and functional properties</b> M. Aider (Canada)
17:00	101030	<b>Study on the parameters of high pulsed electrical field on fruit and vegetable as pre-processing for the vacuum freeze-drying</b> Y. Wu, Y. Guo (China)

Tuesday, June 15 – 15:35 to 17:20

<b>87</b>	<b>Section VI</b>	<b>Spectroscopy and Image Analysis (I)</b>
Time	Paper #	Moderator: Muhammad Shahin (Canada) Room: 2105
15:35		<b>Session Opening</b>
15:40	100280	<b>Laser light backscattering for monitoring changes in moisture content during drying of apples</b> G. Romano, D. Argyropoulos, J. Müller (Germany)
16:00	100448	<b>Estimation of tomato nutritional status by Vis-NIR portable spectrophotometric system</b> V. Ulissi, P. Benincasa, M. Guiducci et al. (Italy)
16:20	100437	<b>Estimation of egg weight by machine vision and neural networks techniques</b> M. H. Raoufat, V. Asadi (Iran)

Tuesday, June 15 – 15:35 to 17:20

<b>88</b>	<b>Section VI</b>	<b>Post Harvest and Fresh Produce – POSTERS</b>
Poster #	Paper #	Moderator: Clément Vigneault (Canada) Room: 2000D
70	101232	<b>Effects of roasting temperatures and storage on the quality of red lentil</b> A. Opoku, L. Tabil (Canada)
71	101233	<b>Storage and quality features of carrots and corn grown under organic and conventional agricultural practices</b> A. Opoku, V. Meda, J. Wahab (Canada)
72	100580	<b>A simple method for measurement of Poisson's ratio for tissue of agricultural products</b> Y. Ogawa, M. Matsuura, N. Yamamoto et al. (Japan)
73	100786	<b>Modeling of rough rice drying kinetics using artificial neural network</b> M. Tohidi, M. Sadeghi, S. R. Mousavi (Iran)
74	100795	<b>Conceptualization design and evaluation of a hyperbaric respirometer</b> B. Goyette, C. Vigneault, N. Wang et al. (Canada)

75	101115	<b>Texture evaluation affected by physical characteristics of carrots during storage</b> P.C. Corrêa, L.R.L. Farinha, G.H.H. Oliveira et al. (Brazil)
76	101628	<b>Investigation of shelled corn drying in a microwave assisted fluidized bed dryer using artificial neural network</b> A. Zomorodian, L. Momenzadeh, D. Mowla (Iran)
77	100826	<b>Intelligent control based on expert system for grain drying</b> H. Zhu, W. Wu, Y. Lan et al. (China)

Wednesday, June 16 – 8:15 to 10:00

<b>100</b>	<b>Section VI</b>	<b>Post Harvest and Fresh Produce (I)</b>
Time	Paper #	Moderator: Lope Tabil (Canada) Room: 2104AB
8:15		<b>Session Opening</b>
8:20	100410	<b>Detection of salmonella on spinach leaf using phage-based magnetoelastic biosensors</b> S. Li, S. Huang, H. Chen et al. (United States/China)
8:40	100451	<b>Transmission of E. coli O157:H7 biofilm from contact surfaces to fresh produce</b> Y. M. Lo (United States)
9:00	100523	<b>Enhancing compaction characteristics of barley straw by microwave/chemical pretreatment</b> M. Kashaninejad, B. Kashaninejad, L.G. Tabil (Iran/Canada)
9:20	100603	<b>Comparison of mechanical properties of two apple varieties under compression loading</b> A.G. Chakespari, A. Rajabipour, H. Mobli (Iran)
9:40	100579	<b>Design, fabrication and evaluation of a moisture-based fig sorter</b> D. Zare, S. Souri, M. Loghavi et al. (Iran)

Wednesday, June 16 – 8:15 to 10:00

<b>101</b>	<b>Section VI</b>	<b>Spectroscopy and Image Analysis (II)</b>
Time	Paper #	Moderator: Scott Noble (Canada) Room: 2105
8:15		<b>Session Opening</b>
8:20	101447	<b>Fast detection of crude protein content in fish feeds based on infrared transmission spectroscopy and chemometrics</b> F. Zhu, P. Nie, Y. He (China)
8:40	101174	<b>Use of hyperspectral imaging to improve the safety of food</b> A. Lefcourt (United States)
9:00	101481	<b>Grade classification and protein content determination in matcha based on Vis/NIR</b> X. Zhang, R. He, Y. He (China)
9:20	100808	<b>Quantitative assessment of maple syrup properties by means of fluorescence spectroscopy</b> A. Clément, B. Panneton, L. Lagacé (Canada)
9:40	100836	<b>Fast adulterant quantification in Chinese yam powder using visible, near and mid-infrared spectroscopy</b> D. Wu, P. Nie, Y. Shao et al. (China)

Wednesday, June 16 – 8:15 to 10:00

<b>102</b>	<b>Section VI</b>	<b>Processing of Food and Beverages – POSTERS</b>
Poster #	Paper #	Moderator: Michael Ngadi (Canada) Room: 2000D
19	101382	<b>Ohmic heating behavior and electrical conductivity of solid foods using low and high frequency power supply</b> R. Zareifard, S. Zhu, M. Marcotte et al. (Canada/China)
20	100513	<b>Application of response surface methodology for optimisation of in vitro enzymatic digestion of soy protein isolate using high hydrostatic pressure processing</b> Z. Lanfang, S. Dan, L. Shujun et al. (China)
21	100992	<b>A new approach of rice processing for control of compound contents and eating quality of cooked rice</b> M. Tamura, Y. Ogawa (Japan)

22	101323	<b>Effect of low anode/cathode voltage difference application on redox potential modulation during milk electroreduction and storage</b> L. Bazinet, A. Schreyer, J. Lessard (Canada)
23	101216	<b>Sustainability of rice processing in rural sub-Saharan Africa</b> M. Bakari, M. Ngadi, R. Kok et al. (Canada)
24	101324	<b>Large scale bioseparation of an antihypertensive peptide from alfalfa white protein hydrolysate by electrodialysis with ultrafiltration membrane</b> L. Firdaous, P. Dhulster, J. Amiot et al. (Canada/France)
25	100706	<b>Winery design criteria for the production of valuable wine (DOC)</b> A. Gusman, A. Marucci, B. Pagnello (Italy)
26	100852	<b>Influence of polyglycerol esters of fatty acid on in vitro digestibility of soybean oil-in-water by pancreatic lipase</b> L. Yin (China)
27	101313	<b>Application of response surface methodology to the optimisation of in vitro enzymatic digestion of soy protein isolate of high hydrostatic pressure processing</b> S. Dan, L. Shu-Jun, H.M. Chan et al. (China/Canada)
28	101072	<b>Process optimization of water jet extraction of pomegranate arils using response surface methodology</b> M.R. Mirian, J. Khazaei (Iran)
29	101125	<b>Factors influencing formation and stability of orange-flavoured beverage emulsion</b> S.V. Baygi, R. Kadkhodaei (Iran)

Wednesday, June 16 – 10:15 to 12:00

<b>115</b>	<b>Section VI</b>	<b>Post Harvest and Fresh Produce (II)</b>
Time	Paper #	Moderator: Clément Vigneault (Canada) Room: 2104AB
10:15		<b>Session Opening</b>
10:20	100636	<b>Design and performance of a lab scale controlled environment chamber (CEC) used for determination of horticultural produce quality deterioration</b> J. Boutin, D. I. Leblanc, C. Vigneault et al. (Canada)
10:40	100940	<b>In-field measurement of fruit respiration for determining climacteric activity and harvest maturity of mango</b> M. Nagle, W. Spreer, B. Mahayothee et al. (Germany/Thailand)
11:00	101123	<b>Effect of drying and tempering conditions on milling quality in multi-pass drying of rough rice</b> E. Nasrnia, M. Sadeghi, A.A. Masoumi (Iran)
11:20	101219	<b>Impact of the age of laying chicken on mechanical strength of eggs</b> N Abdel-Nour, M. Ngadi, V. Raghavan (Canada)
11:40	101275	<b>Energy saving during bulb storage applying modeling with computational fluid dynamics (CFD)</b> A.A. Sapounas, J.B. Campen, J. Wildschut et al. (Netherlands)

Wednesday, June 16 – 10:15 to 12:00

<b>116</b>	<b>Section VI</b>	<b>Spectroscopy and Image Analysis (III)</b>
Time	Paper #	Moderator: Da-Wen Sun (Ireland) Room: 2105
10:15		<b>Session Opening</b>
10:20	101385	<b>Combination of near infrared spectroscopy and multivariate analysis to detect valine (C5H11NO2) in oilseed rape leaves</b> W. Kong, F. Liu, H. Fang et al. (China)
10:40	101207	<b>Confocal laser scanning microscopy imaging of deep-fat fried batter coating</b> A.A. Adedeeji, L. Liu, M.O. Ngadi (Canada)
11:00	101287	<b>Application of near infrared spectroscopy and least squares-support vector machine to determine soluble protein in oilseed rape leaves</b> F. Liu, Y. Zhao, G. Sun et al. (China)
11:20	101107	<b>Near infrared hyperspectral imaging for classification of beef muscles</b> G. Elmasry, D.-W. Sun, P. Allen (Ireland)

11:40	100751	<b>Evaluation of novel high intensity pulsed UV sources for processing food beverages</b> T. Koutchma, M. Orlowska (Canada)
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Wednesday, June 16 – 13:35 to 15:20

<b>129</b>	<b>Section VI</b>	<b>Microbiological Inactivation</b>
Time	Paper #	Moderator: Tatiana Koutchma (Canada) Room: 2104AB
13:35		<b>Session Opening</b>
13:40	100909	<b>Effect of aluminium cookware on microbial inactivation during pasteurization of milk</b> N. Ruangthip, S. Kawamura, Y. Uchida et al. (Japan)
14:00	100748	<b>Characterization of low UVT liquid foods and ingredients for ultraviolet preservation</b> T. Koutchma, C. Defelice (Canada)
14:20	100914	<b>Antimicrobial activity of novel packaging material made from biomass plastics and shell (scallop) powder</b> Y. Hasegawa, T. Kimura (Japan)
14:40	101045	<b>Thermal inactivation of <i>Byssochlamys nivea</i> in pineapple nectar combined with preliminary high pressure treatments</b> E.H.R. Ferreira, A. Rosenthal, V. Calado et al. (Brazil)
15:00	101215	<b>Ultraviolet depuration of <i>Escherichia coli</i> from the juvenile clam, <i>Cyclina sinensis</i> in China</b> M. Yu-Ping, Q. Qing-Lin (China)

Wednesday, June 16 – 13:35 to 15:20

<b>130</b>	<b>Section VI</b>	<b>Spectroscopy and Image Analysis (IV)</b>
Time	Paper #	Moderator: Jochen Hemming (Netherlands) Room: 2105
13:35		<b>Session Opening</b>
13:40	100411	<b>Role of infrared thermal imaging in stored products protection</b> V. Rajagopal, D. S. Jayas, N. D.G. White (Canada)
14:00	101446	<b>The successive projections algorithm for variable selection in alien invasive weeds classification based on Vis/WNIR</b> P. Nie, J. Yu, Y. Zhao et al. (China)
14:20	100647	<b>Application of infrared spectromicroscopy to characterize and determine the spatial distribution of lignocellulosic components in agricultural straw pellets</b> P. K. Adapa, C. Karunakaran, L. G. Tabil et al. (Canada)
14:40	100653	<b>Detection of internal defect in pickling cucumbers using laser scattering image analysis</b> D. P. Ariana, R. Lu (United States)
15:00	101474	<b>Melon soluble solids content measurement using Vis/NIR diffuse reflectance spectroscopy</b> H. S. Shin, S. R. Suh, K. H. Lee et al. (Republic Of Korea)

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<b>131</b>	<b>Section VI</b>	<b>Food Properties (II) - POSTERS</b>
Poster #	Paper #	Moderator: Valérie Orsat (Canada) Room: 2000D
76	101149	<b>Fluid-dynamic properties and pressure loss of black beans in a packed bed</b> R.A. De Oliveira, K.J. Park, A.M. Vivas et al. (Brazil)
77	101167	<b>Methods for the assessment of candy gum elasticity</b> G. Csima, V. Biczó, T. Kaszab et al. (Hungary)
78	101475	<b>Color texture feature analysis for estimation of melon internal quality</b> S.R. Suh, K.H. Lee, S.H. Yu et al. (Republic Of Korea)
79	101553	<b>Moisture adsorption isotherms of castor beans</b> A.L.D. Goneli, P.C. Corrêa, G.H.H. Oliveira et al. (Brazil)
80	101642	<b>Rheological properties of processed liquid egg white products</b> C. Németh, R. Juhász, L. Friedrich et al. (Hungary)
81	101190	<b>Mass modeling of pomegranate fruits: Artificial neural networks method</b> J. Khazaei, S.A. Hosseini, Z.M. Jafari (Iran)
82	100506	<b>Physical properties of cumin (<i>Cuminum cyminum</i>) and caraway (<i>Carum carvi</i>) seeds</b> D. Zare, A. Bakhshipour, A. Zomorodian (Iran)



# LIST OF ABSTRACTS BY PARTICIPATING GROUP

83 100983 **The effect of paddy moisture content on milling losses and post-milling crack development in rice kernel, under different storage conditions**  
N. Sadeghi, S. M. Nassiri (Iran)

Abstract only 100753 **Effect of high hydrostatic pressures on drying kinetics of blueberries variety o'neil**  
Antonio Vega-Gálvez, Margarita Miranda, Gipsy Tabilo-Munizaga, Mario Pérez-Won (Chili)

## SECTION VII Information Systems and 8<sup>th</sup> World Congress on Computers in Agriculture

Monday, June 14 – 10:15 to 12:00

### 14 Section VII Image Analysis and WCCA

Time	Paper #	Moderator: Renfu Lu (USA) Room: 2101
10:15		<b>Session Opening</b>
10:20	100364	<b>Image analysis, 3D geometry modeling and inverse FEA in investigating properties of agri-food and forest products</b> J. Weres, S. Kujawa, K. Nowakowski et al. (Poland)
10:40	100777	<b>Detection of fusarium damaged kernels in wheat using hyperspectral imaging</b> M. A. Shahin, S. J. Symons (Canada)
11:00	101337	<b>Hyperspectral character analysis of rice leaves infested by brown plant-hopper (Nilaparvata lugens)</b> Z. Zhou, Z. Zhao, X. Luo et al. (China)
11:20	100934	<b>Automatic grading of anthurium cut flowers using 3D computer vision</b> J. Hemming, E. J. Pekkeriet, R. Van Der Schoor (Netherlands)
11:40	100250	<b>A hybrid wavelet transform-based agricultural image de-noising algorithm</b> Y. F. Zeng (China)

Monday, June 14 – 10:15 to 12:00

### 15 Section VII Modelling and Simulation – POSTERS and WCCA

Poster #	Paper #	Moderator: Antonio M Saraiva (Brazil) Room: 2000D
17	101485	<b>Production process evaluation of wastewater-irrigated plant biomass through life cycle assessment</b> C. Arcidiacono, S.M.C. Porto (Italy)
18	100399	<b>Simulation of creep process of processed alfalfa based on virtual prototype technology</b> C. G. Wang, G. Z. Zhao, Z. Wang (China)
19	101110	<b>Prediction of process and product parameters in deep bed drying of rough rice using artificial neural network</b> M. Tohidi, M. Sadeghi, S.R. Mousavi (Iran)
20	101471	<b>Conceptual modeling for the design of a computer-based traceability system</b> G. Cascone, C. Arcidiacono, S.M.C. Porto et al. (Italy)
21	101488	<b>From the construction of an ecological network to the definition of an environmentally sustainable planning model for periurban space</b> C.R. Fichera, L. Laudari, G. Modica (Italy)
22	101359	<b>Comparison of fuzzy logic and classic controllers' performance in guiding of a greenhouse applications robot</b> H. Masoudi, M. Omid, R. Alimardani et al. (Iran)

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### 30 Section VII Robotics and Automation (I) and WCCA

Time	Paper #	Moderator: Fedro Zazueta (USA) Room: 2101
13:35		<b>Session Opening</b>

13:40	100984	<b>Development of a remote control system for autonomous agricultural vehicles</b> X. Zhang, Dr. P. O. Noack, L. Grandt et al. (Germany)
14:00	101157	<b>Rice plant detection in heading term for autonomous robot navigation</b> R. Masuda, K. Nakayama, K. Nomura (Japan)
14:20	101358	<b>Design, fabrication and evaluation of a mobile robot for greenhouse spraying</b> H. Masoudi, R. Alimardani, M. Omid et al. (Iran)
14:40	101278	<b>Test and evaluation of two process control strategies for adapting direct injection pesticide application to small scale farms</b> A. El Aissaoui, F. Lebeau, M.-F. Destain (Morocco/Belgium)

Monday, June 14 – 15:35 to 17:00

### 45 Section VII Robotics and Automation (II) and WCCA

Time	Paper #	Moderator: Omar Ulloa (Costa Rica) Room: 2101
15:35		<b>Session Opening</b>
15:40	101182	<b>Developing a framework based database (or as a central tool for) mapping and analysing research and development on ICT and robotics in agriculture and environmental related businesses</b> J. Vangeyte, S. Ms Van Weyenbergh, J. Baert et al. (Belgium/Denmark)
16:00	100761	<b>Vision-based weed identification with farm robots</b> Kishore C. Swain, Michael Nørremarck, D. Bochtis et al. (Denmark)
16:20	101012	<b>Design of an autonomous spraying robot for greenhouse</b> L. Livne, Y. Edan, A. Bechar (Israel)

Tuesday, June 15 – 10:15 to 12:00

### 59 Section VII Information and Communication Technologies (I) and WCCA

Time	Paper #	Moderator: Miguel Castro Neto (Portugal) Room: 2101
10:15		<b>Session Opening</b>
10:20	100633	<b>A unified pest scouting for area-wide IPM</b> A. Hetzroni, L. Shealtiel-Harpaz, Y. Cohen (Israel)
10:40	101166	<b>The development of tools for managing, monitoring and assessing water stressed conditions in Jamaica</b> J. Richards, C. Madramootoo, A. Trotman (Canada)
11:00	100479	<b>Advanced web outreach techniques: capitalizing on social media, live blogging, and mobile technology to connect with agricultural clientele</b> A. Kleinschmidt (United States)
11:20	101199	<b>Assessing biomass chains feasibility at local level</b> N. Colonna, F. Lupia, V. Pignatelli et al. (Italy)

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### 60 Section VII Wireless Technology, Sensors and Image Analysis – POSTERS and WCCA

Poster #	Paper #	Moderator: Fedro Zazueta (USA) Room: 2000D
16	100519	<b>Automatic on-line depth control of seeding units using a non-contacting ultrasonic sensor</b> S. Kiani, S. Kamgar, M. Raoufat (Iran)
17	100929	<b>Wireless sensor system for process monitoring of tree seed storage</b> O. Green, J. J. Larsen, O. J. Jørgensen et al. (Denmark)
18	101075	<b>Utilizing a vast and complex wireless communication network in a sustainable "biosystem" for the production of fiber for use in bioenergy, paper and solid wood production</b> N. Mohamed (United States)

19	101222	<b>Development of a SCADA system for access, processing and supervision of data coming from a wireless sensors network in agro-environmental applications</b> L.M.N.Gracia,E.M.Bravo, G.R. Ruiz et al. (Spain/Portugal)
20	100699	<b>Crop rows tracking by detecting individual plants using computer vision to guide farming vehicles</b> G. Ruiz-Ruiz, J. Gómez-Gil, L. M. Navas-Gracia et al. (Spain/Brazil)
21	100916	<b>Automated monitoring of variations of drying conditions in a seed drying facility</b> O. Green, J. J. Larsen, E. F. Kristensen et al. (Denmark)

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<b>74</b>	<b>Section VII and WCCA</b>	<b>Information and Communication Technologies (II)</b>
Time	Paper #	Moderator: Elsa S. Sepulveda Bustos (USA) Room: 2101
13:35		<b>Session Opening</b>
13:40	100741	<b>Utilization of plug-in and content management system (CMS) as tools for developing National Biosafety Clearing House (BCH) applications: Cases in Asia-Pacific and Latin American countries</b> R. V. Maningas (Philippines)
14:00	100970	<b>Formal representation of agricultural production standards</b> E. Nash, J. Wiebensohn, R. Nikkilä et al. (Germany/Finland/Greece)
14:20	101196	<b>Towards a framework for planning and designing of rural knowledge centres</b> G. Dileepkumar, S. Chaudhary, K.A. Sai et al. (India/USA)
14:40	101200	<b>Reusing content with reusable learning objects (RLOs): An approach for addressing content issues of agricultural education and extension</b> G. Dileepkumar, S. Chaudhary, K.A. Sai et al. (India/USA)
15:00	101638	<b>A multi-lingual translation engine for translating ration formulation programs from English to Spanish, Portuguese, Italian, German, and French languages</b> A. Ahmadi, P.H. Robinson, P. Chilbroste (United States)

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<b>89</b>	<b>Section VII and WCCA</b>	<b>Wireless Technology (I)</b>
Time	Paper #	Moderator: Margarita Ruiz Altisent (Spain) Room: 2101
15:35		<b>Session Opening</b>
15:40	100502	<b>Remote access of ISOBUS workbench for the IsoAgLib study and implementation</b> R. R. D. Pereira, A. J. V. Porto, R. Y. Inamasu (Brazil)
16:00	100712	<b>Exploitation of wireless telemetry for livestock condition monitoring</b> C. Di, T.-T. Wu, H. G. Goh et al. (United Kingdom )
16:20	100698	<b>Wireless sensor networks for environmental monitoring in precision viticulture</b> A. B. Ramos, F. M. Riquelme, F. M. Garcia et al. (Spain)
16:40	100922	<b>A model to predict calves' lying time with wireless 3-dimensional accelerometer collar</b> P.Tamminen,L. Hänninen, A.-H. Hokkanen et al. (Finland)

Wednesday, June 16 – 8:15 to 10:00

<b>103</b>	<b>Section VII and WCCA</b>	<b>Geographical Information Systems (GIS) and Web Based Services</b>
Time	Paper #	Moderator: Silvia M. F. S. Massruha (Brazil) Room: 2101
8:15		<b>Session Opening</b>
8:20	100584	<b>Rest-based web services for the discovery and distribution of agricultural production standards</b> R. Nikkilä, E. Nash, I. Seilonen et al. (Finland/Germany)
8:40	100887	<b>Developing web-based irrigation models and services</b> J. M. Gonçalves, A. Muga, P. Teodoro et al. (Portugal)
9:00	101154	<b>RU-SLIMS development of Rutgers University's web-based soils laboratory information management system</b> R.S. Muldowney, S. Murphy (Canada)

9:20	101398	<b>Development and use of a Web-GIS-Based Information System for the management and supply of hickory environment condition data</b> J. Yu, P. Nie, Y. He (China)
9:40	101618	<b>Decision support systems for environmental management and conservation: A GIS-based model</b> E. Ferrer (United States)

Wednesday, June 16 – 10:15 to 12:00

<b>117</b>	<b>Section VII and WCCA</b>	<b>Modeling, Simulation and Data Mining (I)</b>
Time	Paper #	Moderator: Antonio M Saraiva (Brazil) Room: 2101
10:15		<b>Session Opening</b>
10:20	101162	<b>Quantitative analyses aspect of vibrational spectroscopy and its applications in agriculture</b> W. Wang, J. Paliwal (Canada)
10:40	100677	<b>Aerodynamic modeling of windbreaks in Saemangum reclaimed land</b> J. P. Bitog, I-B. Lee, S-W. Hong et al. (Korea)
11:00	100823	<b>Comparison of different methods for sensitivity analysis of composting modelling</b> P. Courvoisier, G. Clark (Canada)
11:20	101090	<b>Fourier filtering for wheat detection in a context of yield prediction</b> L. Jourmaux, A. Marin, F. Cointault et al. (France)
11:40	101191	<b>Machine learning models for prediction of added water in milk as a function of milk temperature and some other physical characteristics</b> J. Khazaee, M. Nikousiar, N. Mohammadi (Iran)

Wednesday, June 16 – 10:15 to 12:00

<b>118</b>	<b>Section VII and WCCA</b>	<b>ICT, GIS and Web Services – POSTERS</b>
Poster #	Paper #	Moderator: Jiannong Xin (USA) Room: 2000D
50	101034	<b>Radio frequency interactions with air cargo container materials for real time cold chain monitoring</b> M. Laniel, I. Uysal, J.-P. Émond (United States)
51	101080	<b>Spatio-temporal variability of soil moisture at the field scale using remote and proximal sensing</b> K. Labrecque, M. Bernier, M.C. Nolin et al. (Canada)
52	101495	<b>Claw and foot health: Early diagnostics and prevention of foot lesions in dairy cattle</b> P. Tamminen, M. Pastell, J. Häggman et al. (Finland)
53	101486	<b>Remote sensing and GIS for rural/urban gradient detection</b> C.R. Fichera, G. Modica, M. Pollino (Italy)
54	100365	<b>Advanced technologies in developing web-based decision support systems for agriculture</b> J. Weres, W. Mueller, R. Kozłowski et al. (Poland)
55	101464	<b>The development of whole process mechanization production and technical specification of the whole process mechanization of rape in eastern China</b> K. Zhou (China)
56	100837	<b>Quantitative analysis supported in SNA of the production milk chain in Brazil</b> M.N. Mollo, I.A. Nääs, O. Vendrametto et al. (Brazil)

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<b>132</b>	<b>Section VII and WCCA</b>	<b>Modeling, Simulation and Data Mining (II)</b>
Time	Paper #	Moderator: Stanley Best (Chile) Room: 2101
13:35		<b>Session Opening</b>
13:40	101224	<b>DiagData: A tool for generation of fuzzy inference system</b> S.M.F.S. Massruhá, R.F. Riccioti, H.P. Lima et al. (Brazil)
14:00	100657	<b>Using data mining to evaluate different minimum ventilation systems in broiler houses</b> D.J. Moura, T.M.R. Carvalho, I.A. Nääs (Brazil)
14:20	101644	<b>Challenges in ecological niche modelling</b> F.S. Santana, A.M. Saraiva (Brazil)

# LIST OF ABSTRACTS BY PARTICIPATING GROUP

14:40	101457	<b>Structural plant modelling based on real 3D structural parameters, resulting simulation system and rule-based language XL</b> R. He, J. Hu, Y. He et al. (China)
15:00	100824	<b>A numerical integrated model of composting processes using finite elements methods</b> P. Courvoisier, G. Clark (Canada)

Wednesday, June 16 – 13:35 to 15:20

## **133 Section VII Wireless Technology (II) and WCCA**

Time	Paper #	Moderator: Seishi Ninomiya (Japan) Room: 2102B
13:35		<b>Session Opening</b>
13:40	101159	<b>Refrigerated fruit storage monitoring using RFID and WSN</b> L. Ruiz-Garcia, J. Garcia-Hierro, P. Barreiro et al. (Spain)
14:00	101270	<b>Three-tier wireless sensor network for environmental monitoring</b> N. Zhang, W. Han (United States)
14:20	100477	<b>Development of RFID temperature tracking systems for combat feeding logistics</b> C. Amador, J.-P. Emond (United States)
14:40	100679	<b>Research on WSN design and formation for drought monitoring in a tea plantation</b> W. Wang, D. Sun (China)

Abstract only	100563	<b>Development of an automatic control management system for a greenhouse</b> Yutaka Sasaki, Noe Velazquez Lopez, Kazuhiro Nakano (Japan)
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